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A+

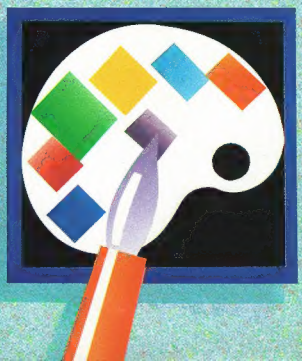
The #1 Apple II Magazine

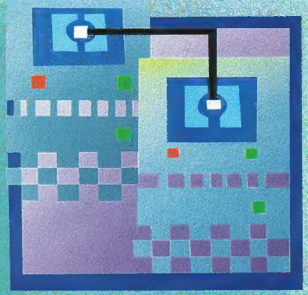
APPLEWORKS GS

THE CLASSIC TRANSFORMED: CLARIS UNVEILS A ONE-STOP WORKPLACE FOR THE APPLE IIgs

APPLES IN SPACE
Planets, Stars, and Astronauts

WORDBENCH
Using the Write Tools





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ONE MISTAKE AND IT'S THE BIG PANCAKE.

You're at the foot of one of the world's highest mountains. And you're not snapping pictures. Because this is the FINAL ASSAULT. The only mountain climbing game in the Alps or anywhere else.

IF YOU'RE AFRAID OF HEIGHTS, FORGET IT.

You'll experience the terror and elation of one of the most grueling sports ever. And you'll be tested every step of the way.

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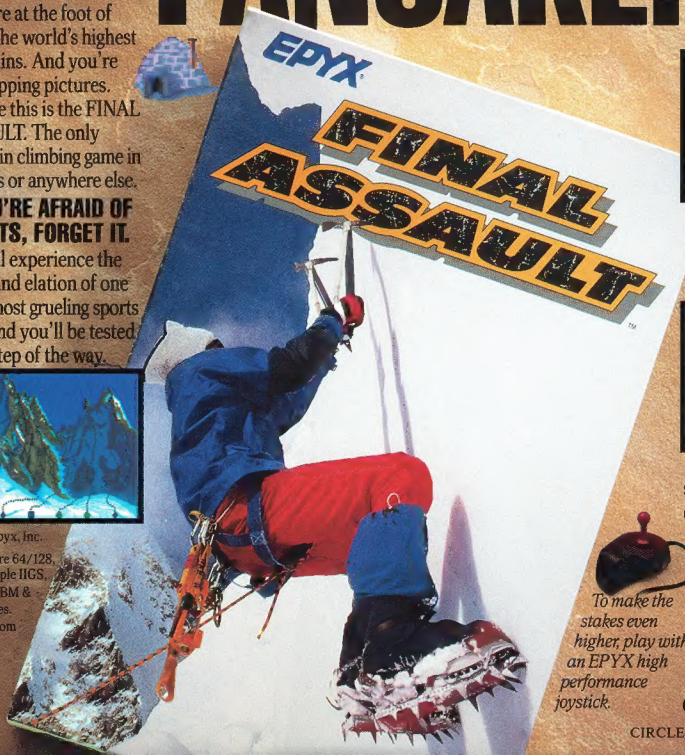
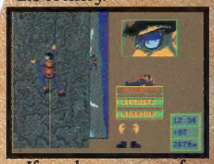
Commodore 64/128, Amiga, Apple IIGS, Atari ST, IBM & compatibles. Screens from Atari ST.



Did you pick the right course? (There are six treacherous possibilities.)

What about supplies? If you run out of soup, you'll be stuck with snow sandwiches.

Forget your spikes or ice picks? You could end up a permanent part of the scenery.



If you have nerves of steel, even when you're dangling 40 feet off a cliff, you might just be one of the lucky few to plant your flag at the peak.

To make the stakes even higher, play with an EPYX high performance joystick.

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CIRCLE 147 ON READER SERVICE CARD

A Pop Quiz For School Computer Buyers

1. Apple® computers are the only computers that run Apple programs. True or False?

2. Based on list prices—$799 for the Apple //c and $479 for the LASER 128,® how many LASERS can you get for the price of three Apples?
   A. 2
   B. 5
   C. 8

3. Which computer is readily available through computer shops, leading department stores, and educational dealers?
   A. LASER
   B. Apple
   C. Both

1. False. The LASER 128 runs Appleworks® and thousands of educational and popular Apple programs. **2. B. 5.** You can get five LASER 128s for the price of three Apples. Even better, schools get substantial discounts. **3. C. Both.** LASERS, like Apples, are sold and serviced nationwide.

One of the most sought-after computers in education today, nearly a quarter million LASER 128s have been sold. *Electronic Learning* calls it a "terrific deal for a terrific machine."

Stretch your school's computer budget. Check into the LASER 128. Call 312/540-8911 (on the West Coast, 503/690-8086), or write LASER COMPUTER, 550 E. Main St., Lake Zurich, IL 60047. You'll score "100" on this pop quiz.

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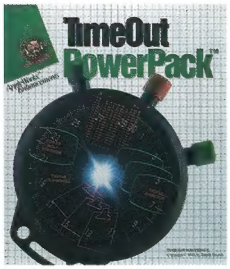
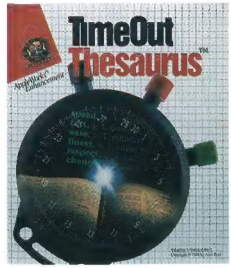
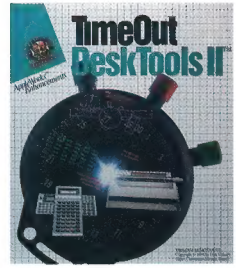
CIRCLE 115 ON READER SERVICE CARD

LASER 128

AppleWorks never had it so good.







The TimeOut™ series is the best thing to come along for AppleWorks users in a *long* time. These widely acclaimed AppleWorks add-ons aren't like add-ons at all. They are integrated so well with AppleWorks they seem built-in—like they have always been there. And you can access them instantly from *inside* AppleWorks. Our original seven TimeOut products (QuickSpell, SuperFonts, Graph, UltraMacros, SideSpread, FileMaster and DeskTools) revolutionized the way you use AppleWorks. Now there are more TimeOut products that have just been added to the family.

TimeOut Thesaurus™

Thesaurus gives you instant access to nearly 50,000 online synonyms. Stop wasting time looking up synonyms by hand in your old paperback thesaurus. With Thesaurus you can just put the cursor on the word you want a synonym for, press Open-Apple-Escape and you will see a list of synonyms from the built-in Random House word list. Synonyms are listed by parts of speech—noun, verb, etc. If you see a word that suits you, select it and the original word in your document will automatically be replaced with the new word. If you see a word that you *almost* like, you can get a list of synonyms for that word—you can get synonyms for synonyms up to eight levels deep. And Thesaurus is smart. It automatically removes and adds suffixes as needed to let you find the maximum number of synonyms possible. Thesaurus is the perfect companion for QuickSpell too.

TimeOut PowerPack™

PowerPack (Editor's Choice, in Cider magazine August 1988) includes ten new applications that add more muscle to AppleWorks:

TRIPLE DESKTOP allows up to 36 files on the desktop (instead of just 12).
TRIPLE CLIPBOARD creates three independent clipboards.
PROGRAM SELECTOR lets you run other programs and automatically return to AppleWorks.
LINE SORTER alphabetizes lists of words or numbers in the word processor.
HELP SCREENS let you make your own customized help screens.
FILE LIBRARIAN reads your disk directories into a data base file where you can search and sort on any category.
DESKTOP SORTER arranges the desktop index any way you want.
CATEGORY SEARCH lets you search one particular category instead of all.
AWP TO TXT saves true text without all those unwanted carriage returns.
ASCII VALUES converts numbers to ASCII, hex, binary and screen equivalents.

TimeOut DeskTools II™

DeskTools II adds all kinds of goodies to AppleWorks:

AREA CODE FINDER shows you area codes for the U.S. by city or state.
CALCULATOR PLUS is an extremely powerful financial and scientific calculator.
CLIPBOARD VIEWER shows you the current contents of the clipboard.
MEASUREMENTS converts metric, decimal, length, weight, liquid, time, etc.
DIRECTREE shows where your files are stored on disk and lets you load them without specifying prefixes or pathnames.
DISK TESTER verifies your disk.
FILE SEARCH finds the phrase you're looking for in any file on disk, fast.
PRINTER MANAGER lets you send any control codes you want to your printer.
SCREEN BLANKER prevents screen burn-in by blanking it when not in use.
SCREEN PRINTER lets you print any portion of the screen.
STOP WATCHES keep track of up to five separate events at the same time.

TimeOut SpreadTools™

SpreadTools is packed with new applications designed especially for AppleWorks spreadsheets:

ANALYZER lets you scan your spreadsheet for errors, print out a cell cross reference, get a bird's eye view of the entire spreadsheet, adjust column widths to show entire formulas, track down cell references, and print the value of all cells.
BLOCK COPY lets you copy blocks of cells (rather than just rows or columns).
CELLINK links spreadsheets so you can import values from other spreadsheet files.
DATA CONVERTER automatically converts data from word processor to spreadsheet, spreadsheet to data base, and data base to spreadsheet.
FORMULA TO VALUE converts formula cells to values to save memory and cut down on re-calculation time.
QUICK COLUMNS lets you set column widths fast.
ROWS < — > COLUMNS lets you convert a row into a column or vice versa.

TimeOut MacroTools™

In addition to the original MacroTools (Macro Debugger, Task Launcher, Menu Maker, Token Chart, File Stats, and lots of new macros), there's also MacroTools II which has still *more* for all of you macro maniacs including Publisher, File Lister, Macro Lock and tons of new macros.

TimeOut Paint™

Paint is a bonus, pull-down menu, graphics program that we've recently added to SuperFonts and Graph. It has lots of tools and works with Hi-Res, Double Hi-Res and PrintShop pictures.

What are you waiting for? Go to your local store today or call us and order direct.

You've never had it so good.

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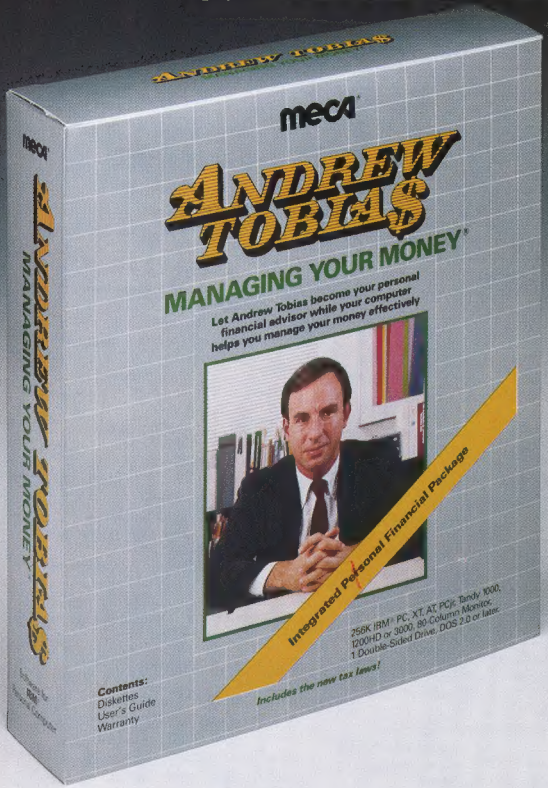
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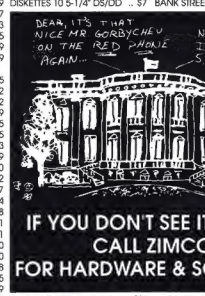

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JANUARY 1989/VOLUME 7/ISSUE 1

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BY BOB LINDSTROM
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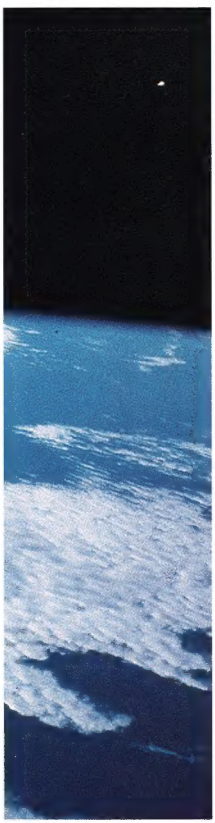

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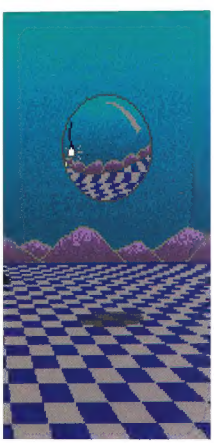

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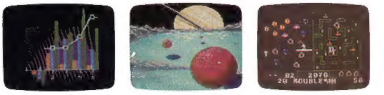

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EDITOR'S PAGE

NEW YEAR'S WISHES

At AppleFest last September, Apple CEO John Sculley promised a new Apple II computer within 12 to 18 months. Although he didn't detail the features of this promised machine, the mere announcement of it brought an enthusiastic response from an Apple II crowd hungry for any morsel of good news.

A+ editors and readers are never reluctant to express an opinion. With a little time on our side before this new CPU sees the light of a video screen, it seems appropriate to get our two bytes in and identify the features we would like to see in this new Apple II.

Basically, a new machine should be an upgrade of the IIGS. With its accessible mouse/menu interface, colorful graphics, 15-channel sound, and compatibility with Macintosh peripherals, the IIGS represents a logical and flexible direction for the future of the Apple II line. With some additions and improvements, an upscale IIGS could easily take the Apple II computer into the 21st century.

•Faster Operation. The speed and computing power of the IIGS are not yet enough to efficiently master everything the computer tries to do. With a faster and/or more powerful processor, the IIGS could challenge the productivity of the Macintosh.

•Standard 2Mb RAM. Yes, RAM is expensive right now, but it won't remain so forever. With programs such as AppleWorks GS requiring 1.25Mb of RAM, Apple must recognize that larger RAM storage should be standard across the Apple II line.

•Built-In SCSI Port. The 800K capacity of 3.5-inch floppy disks is exciting, but hard-disk storage is ecstasy. Making a SCSI port standard on the Apple II (as it is on the Mac) will make it easier for more Apple II owners to appreciate the joy of mass data storage, including CD-ROM.

•Graphics Coprocessor. Speed up that screen! And maybe offer 256 simultaneous colors in the process. Apple IIGS graphics are eye-filling, but the VGA graphics of MS-DOS Land do them 240 colors better. Let's stay out on the cutting edge of graphics displays and speed by giving the CPU a little extra help.

•NTSC Video Output. The fast-growing field of desktop video is a fertile area for Apple II development. The nonstandard video output of the Apple II is less than desirable, however, for applications outside of home videotaping. A video signal that followed NTSC specifications more closely could place the Apple II directly into this creative area.

With some additions, an upscale IIGS could easily take the Apple II into the 21st century.

•Built-In Stereo. We're already paying plenty for a IIGS. How about saving us $50 by putting stereo audio outputs on the computer? It's no big deal, guys.

•More Flexible Slots. Amazing as it may seem for beginning Apple II purchasers, those internal slots can fill up very quickly, especially since the IIGS deactivates several of them in favor of the external ports. More slots or a more flexible remapping of the available slots would make a new Apple II computer far more expandable and, therefore, more useful.

•Higher-Capacity Disk Drives. Combine the peripheral prowess of GS/OS with the new high-capacity 1.4Mb, 3.5-inch disk drives of the Macintosh IIx. Not only could an Apple II equipped

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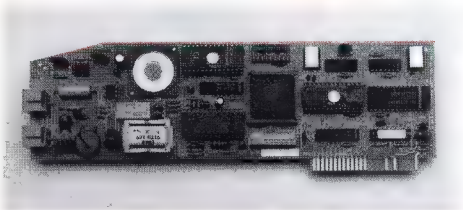

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EDITOR'S PAGE

with this heady combination boast increased storage capacity, but the new drive could also directly access data on PC-formatted disks, thereby providing an entree to the MS-DOS world.

And while we're on the subject, how about a file-system translator for IBM-format CD-ROMs, a Mac-compatible add-on board, and a built-in fan? Just asking . . .

Make no mistake, these comments aren't fact or even rumor. They're only the hopeful holiday dreams of some professional Apple II enthusiasts.

Now that the *A+* editors have spoken, it's your turn. What do *you* want to see in a new Apple II?

New Column

Each day, the *A+* mailbag arrives full of questions from readers. They range from the commonplace ("I can't get my Apple II to work with the Mitsuyoshihama X48A20 letter-quality thermal printer.") to the arcane ("Can I get AppleWorks to print Sanskrit characters?").

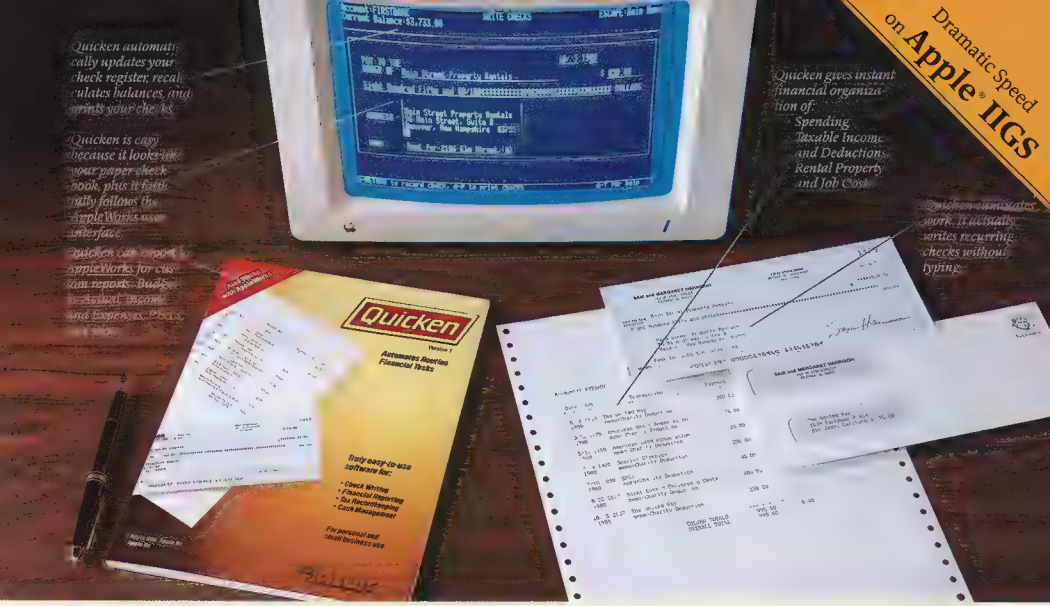
Valid questions all, but impossible for us to answer individually. So, this month, technical editor Owen W. Linzmayer inaugurates a new monthly column to help solve Apple II productivity problems.

In "SmartPort," Owen will bring his expertise to the broad spectrum of Apple productivity. This month, for instance, he addresses the specific issue of printing foreign-language characters from within AppleWorks. In other months, he may provide an overview of AppleWorks enhancement software or show how to negotiate the confusing variety of Apple II graphics standards.

Whatever the topic, "SmartPort" will help you and your Apple II work faster, better, and more efficiently. If you have a suggestion for a possible "SmartPort" column topic, drop Owen a letter here at the *A+* offices.

Bob

BOB LINDSTROM/**EDITOR**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Martin Blumenthal, **inCider Magazine**

With the power of AppleWorks so readily available, it's more than good…it's indispensable. Home and small business checking software used to be too expensive, too hard to use, and too rigid, and it took too long. Quicken has changed all that.

Ken Landis, **A+ Magazine**

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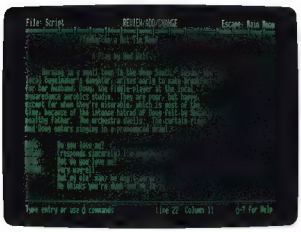
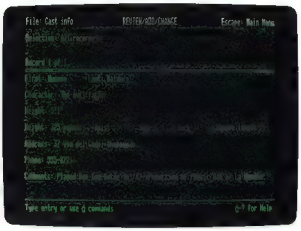
Everything isn't what it used to be.



With a word processor, spreadsheet and database in one package, AppleWorks has just about everything an Apple II owner could want.

You can jump from one program to another in the blink of an eye. Which makes AppleWorks an exceptional choice for fast-paced businesses.



AppleWorks is the best-selling Apple software of all time. And if you own an Apple IIe or IIc, you still can't buy a more powerful program.

When AppleWorks® rocketed to the top of the best-seller lists a few years back, Apple II owners thought they had seen everything.

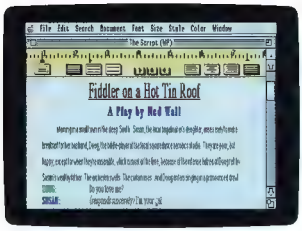
They were right. AppleWorks contained every program you could possibly want in just one program. And exercised the power of the Apple II like it had never been exercised before.

But then came the Apple IIGS. With more power and new capabilities. Everything had changed. And Apple IIGS owners wanted more.

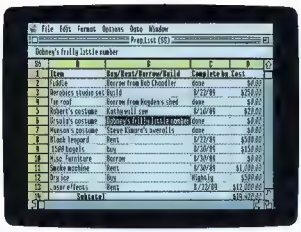
A program with everything AppleWorks has. And everything else, too.

© 1988, Claris Corporation. 440 Clyde Avenue, Mountain View, California 94043; (415) 962-8946. Claris is a trademark of Claris Corporation. AppleWorks is a registered trademark of Apple Computer, Inc. In Canada, call 800-668-8948. AppleWorks GS requires an Apple IIGS with 1.25 megabytes of RAM. If you don't have that

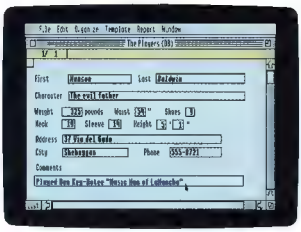
Now it's more.



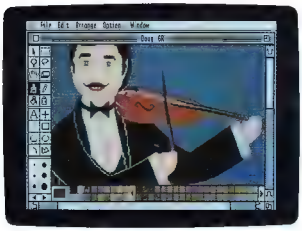
Like AppleWorks, AppleWorks GS offers a powerful word processor. And you can enhance your work with type styles, sizes and fonts.



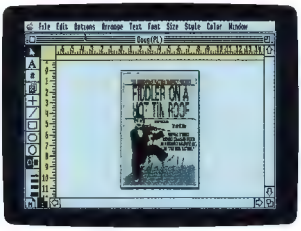
AppleWorks GS can read all your AppleWorks files. And when you transfer your spreadsheets to AppleWorks GS, you can add boldface.



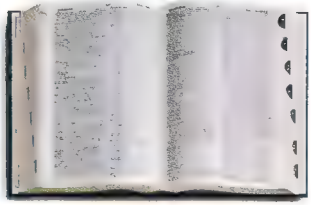
The database lets you store and sort thousands of business, school or home records. And now you can use a mouse and pull-down menus.



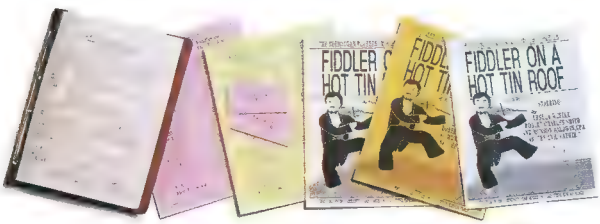
A graphics program that seamlessly combines bit-mapped painting and object-oriented drawing capabilities will leave Macintosh users jealous.



AppleWorks GS includes the most powerful Apple II page-layout program you can buy. Put all the pieces together. Then publish them.



A spell checker with an 80,000-word dictionary is built in. Ditto for a thesaurus that can make you more articulate, eloquent or perspicuous.



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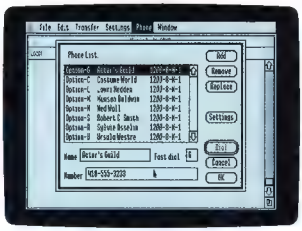

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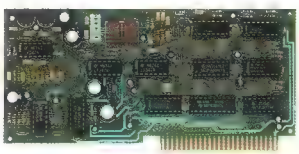

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LETTERS TO THE EDITOR

Z-LINK PLUS WARNING

Dear A+: I am the developer of a communications program, Z-Link, for Apple II computers. It has been distributed as shareware since October 1987 and has been available on GEnie since January 1988.

Sometime around July 20, 1988, a complaint reached the library manager at GEnie saying that Z-Link had done something odd to a friend's disk. When he cataloged by any method, it looked OK, but when he examined it from APW, the disk was messed up. He suspected that a virus was running within Z-Link.

His copy of Z-Link was actually entitled Z-Link Plus and had been acquired from a local BBS. A copy of the program was forwarded to the GEnie library manager, and he examined the code. Indeed, a destructive virus was present. After this virus runs 15 times on the same disk, it writes $FFs throughout the volume directories of all online disks.

Anyone using a program called Z-Link Plus or who owns a copy of Z-Link of dubious origin should promptly delete it and send me a SASE with a disk for a clean copy of Z-Link. The disk I send you will contain the latest version of Z-Link and two virus-checking programs written by others; one checks specifically for CyberAIDS and Festering Hate, the viruses lurking in Z-Link Plus, and the other is a general-purpose checker.

I also implore people not to immediately suspect the author of a virus' host software of encouraging this deplorable activity. I didn't write the virus, but mail on some BBSs claims that Z-Link was written as a front for the virus. This accusation is false. If you can offer any information on the perpetrators of this virus, I would appreciate your assistance in apprehending the menaces.

DAVID WHITNEY
450 MEMORIAL DRIVE
CAMBRIDGE, MA 02139

PUBLISH IT! MEETS EXPECTATIONS

Dear A+: I have enjoyed your magazine for about a year now. The issue on desktop publishing (September 1988) was very useful: From it I made my decision to purchase Publish It! over Springboard Publisher, the latter of which I had tried out for more than an hour at the local Apple dealer and found to be powerful but far too slow. In addition, your comparison of printouts added the final straw. I have never liked the print-quality limitation of Springboard's Newsroom and steered clear of that company's desktop-publishing program for the same reason. If the final copy doesn't look good, who could care less about a powerful drawing mode? Publish It! prints superbly on the ImageWriter II.

Although your review of Publish It! mentions that the program recognizes only the first 128K of RAM, the article fails to point out how quickly Publish It! performs when you load it manually into a RAM disk. The speed and convenience of the program increase considerably under these conditions. You can load in all fonts and artwork if you have enough RAM. A RAM disk also frees up a drive for saving data. I've used the program several times now and am struck by its logical simplicity. It's particularly useful for making overhead transparencies.

My only complaint is about the program's minimal desktop. Although the current desktop of 29K is fine for most applications, its modest size can create limitations. If you want to use full-frame double-hi-res graphics, for instance, you'd better limit yourself to using the full frame of a graphic screen. Otherwise, the program performs fine. I hope Publish It! will soon

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provide its soon-to-be-many users who have RAM disks with more desktop space.

GEORGE HARDY
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STAY GENERAL

Dear *A+*: I've subscribed to *A+* for almost two years, and I thought you might be interested in some input from a 65-year-old computer nut. I was first exposed to the high-tech computer field only 2½ years ago. Since then, it has fascinated me, and I spend most of my semi-retirement reading as much literature on the subject as possible. Thus, I subscribe to many Apple and IBM-oriented publications.

Your October issue just arrived, and, as usual, I immediately read it from cover to cover. I was disappointed! I still consider myself a novice user and am always looking for information to improve my knowledge of computers. It seems to me that devoting an entire issue to a single area [education, in this case] does not benefit me at all. Would allotting your magazine to cover many areas in the computer field not be more practical to most of your readers?

FRANK J. GYSSLER
DES PLAINES, IL

WHERE ARE THE IIGS VERSIONS?

Dear *A+*: Thanks for confirming my suspicion that a lot of software for the IIGS is essentially no different from the IIe version ("GamePort," September 1988).

Obviously, some of the software should be written to take advantage of the IIGS's higher resolution and sound capability. What can *A+* and/or Apple do to encourage software developers to do this? What can I do?

These two features were the main reason I bought my IIGS one and a half years ago, and I have been waiting ever since for a *true* IIGS version of a good flight simulator with super-hi-res graphics and truer sound effects.

Do subLOGIC and other developers have any plans for a true IIGS version, and when might they be available?

MARK RUTHS
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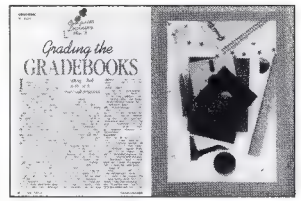
GRADEBOOK REACTION

Dear *A+*: Thanks for your "Grading the Gradebooks" feature (October 1988, pages 38–50). Its analysis should prove quite useful for prospective purchasers.



Having used Grade Manager for years, I do know, however, that it is certainly not an equal to Scorekeeper (which I am now using), as your two composite B+ ratings would seem to indicate. When used with a GS and a 3.5-inch disk drive, Scorekeeper is faster, more powerful, and easier to master.

The limitations in maximum students and maximum grades per student of your top-rated program, Gradebusters, should have downgraded its "perfect" score of "A" in the "all things considered" category. Fortunately, your analysis included this information, which should keep teachers from buying a program that cannot accommodate moderately large classes or daily grades.

KEN SEVERSEN
FORT DODGE, IA

LETTERS

APPLE LOSES SOUL

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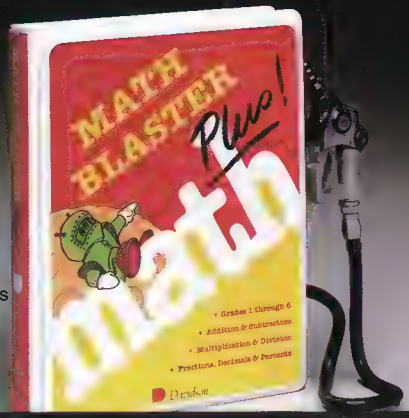

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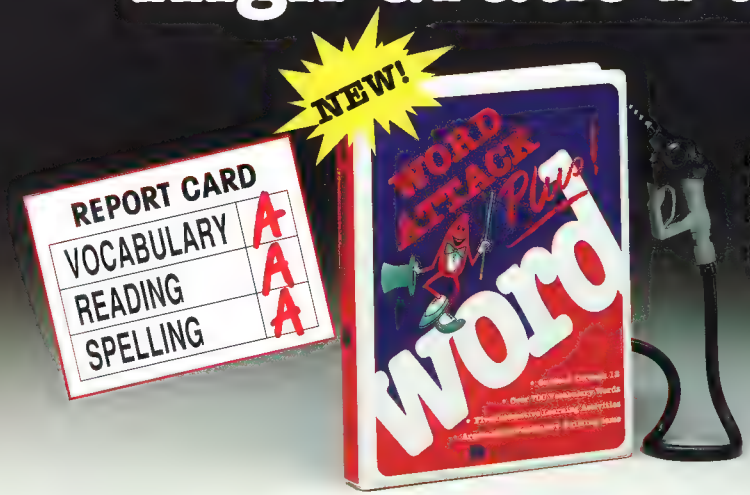

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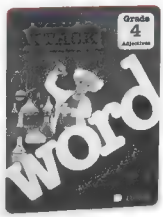

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HAL SUNDT
SANTA ANA, CA

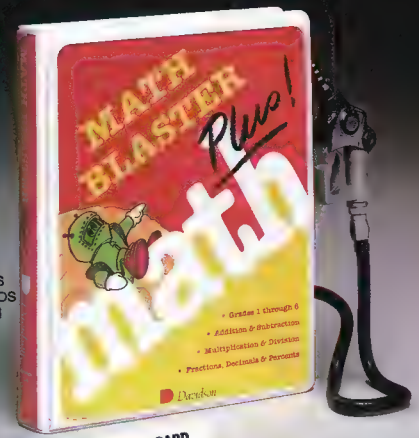
MORE DB MASTER PRAISE

Dear *A+*: I couldn't agree more with Renee Matthews' adoration of the new version of DB Master ("Letters," July 1988, page 16). I have been using DB Master Professional for ten months now to run my medical office. I love AppleWorks but was frustrated by its complex solutions to simple business tasks. With DB Master, I don't have to fight the computer to get reports, insurance forms, and bills printed. I encourage everyone, especially small businessmen using an Apple II computer, to at least try the demonstration disk. It will be the best $10 you have ever spent!

STUART A. NAULTY, D.P.M.
MURRAY, KY

For an in-depth evaluation of DB Master from Stone Edge Technologies, see the review in the November 1988 issue.—Editors

HIGH GRADE FUEL.



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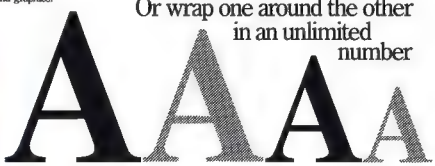

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None of your old files are too complex for geoPublish to handle. Because its Text Grabber™ converts almost any text (like AppleWorks, MultiScribe, WordPerfect) instantly,

TOP PUBLISHER
BLE DIFFERENCE.

with formats intact. You just import it and pour it right in, column by column.

All in less time than it took to describe it.

You can enlarge your art collection too, by clipping from the most popular programs. It doesn't matter if it's Print Shop, Newsroom, Print Master or Dazzle Draw—because geoPublish has great taste when it comes to imported art.

Print out poster size documents with a LaserWriter.

Cutting the competition down to size.

With geoPublish, you find really big differences in even the tiniest places. For example, the zoom option gets you down to the smallest details. The smoothing option automatically irons out bumpy pixels. And then there's the feature most worth waiting for: a redraw function that doesn't make you wait an eternity for one change.

Lay out a newsletter. Flow text. Preview entire page.

Zoom in for detail work

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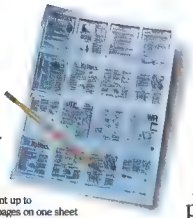
Now, you want to see how we turn the competition on its head? Try sideways text. Real sideways stuff, not just letter-stacking.



Print up to 16 pages on one sheet with a LaserWriter.

The long and the short of it.

How packed is geoPublish? Well, we've only got two pages and we're still not done. So here's a little list of things that reduces the other guys to tears: Full LaserWriter support for near typeset quality and giant size posters. An "object-oriented" Graphic Toolbox with 16 tools including lines, squares, splines, circles, ellipses and 32 different shades and patterns. A free clip art sampler. Full integration with the entire GEOS™ family of applications. And more. Add to that how much easier it is to use and you can see why nobody measures up to geoPublish. The grown-up desktop publisher that has the competition shrinking in fear.

SYSTEM REQUIREMENTS: Apple IIc, IIc Plus, IIe (or compatibles; IIe need not be enhanced), IIGS, with 128K memory, double hi-res graphics capability, joystick or mouse, 5¼" or 3½" disk drive.

geoPublish is not copy protected. Package includes clip art, easy to use manual, both 5¼" and 3½" disks, authoritative quick reference cards.

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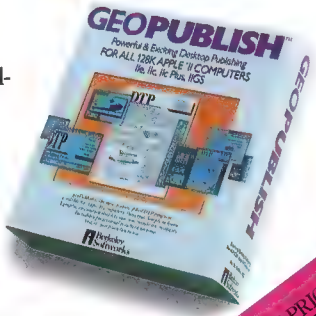

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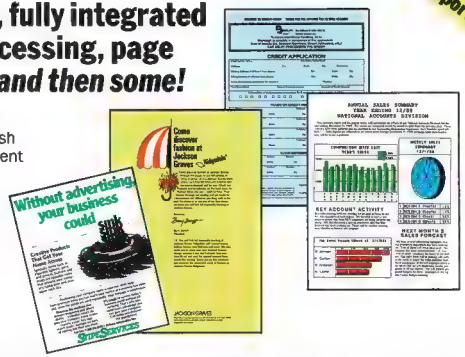

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CIRCLE 116 ON READER SERVICE CARD

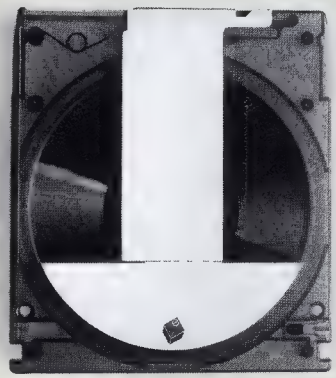
NEWSPLUS

What's NeXT, free solutions, cheap talk, a big apple leaves the orchard, and other industry updates

STEVE'S NEXT JOBS

After playing an extended game of "I know something you don't know" with the computer industry, Apple Computer cofounder Steve Jobs, 33, finally unveiled his top-secret NeXT computer at a gala invitational presentation in San Francisco last October.

Aimed at the higher-education market, a market Apple Computer is targeting with the Macintosh, the NeXT machine combines traits of microcomputers and high-end workstations. The computer is based on a Motorola 68030 processor and 68882 math coprocessor operating at 25 MHz. The NeXT system comes with a standard 8Mb of RAM, expandable to 16Mb on the CPU board.



The NeXT computer's 256Mb optical storage disk stores the equivalent of 300–400 books.

To permit the 68030 to operate at its maximum speed of 5 MIPS (million instructions per second), the NeXT has two very-large-scale integrated (VLSI) chips for data management and data input/output to a 256Mb optical read/write/erasable disc. Also included is a Motorola 56001 digital signal processor for such functions as the reproduction of compact-disc-quality music and synthesized sound in stereo.

The computer runs under Mach, a UNIX-compatible operating system, combined with a graphic, icon-based interface called NextStep. Among the bundled software is a Digital Library with a variety of software and reference materials, including the complete works of Shakespeare and Webster's *Collegiate Thesaurus*; a C preprocessor, compiler, and debugger; electronic-mail software; the WriteNow word-processing program; Mathematica, a system for mathematical computation; and Jot, a personal database manager.

The complete hardware system consists of a black, one-foot-cube CPU; keyboard; and 17-inch, high-resolution, gray-scale monitor. The NeXT computer is scheduled to retail for $10,000, with educational discounts bringing the price down to $6,500.

Although asked repeatedly, Jobs skillfully dodged the issue of inexpensive, low-capacity data storage for the NeXT computer. The current lack of a floppy-disk storage device means that software must be expensively distributed on the $50 optical-disc medium or downloaded from telecommunications networks. —*BL*

NEWSPLUS

FREE SOLUTIONS

Teachers interested in cooperative learning, call Sunburst Communications Customer Service Department ([800] 431-1934 or [914] 769-5030) for a copy of the fall issue of *Solutions*, the company newsletter. Sunburst devotes the whole issue to the topic and includes discussion of what cooperative learning is all about; practical examples of how to implement cooperative-learning strategies involving computers; tips for grading cooperative-learning activities; and a special feature report on how to use cooperative learning to teach writing. The publication is available free of charge. —*JB*

TOP ED CONSULTANTS

In response to increasing numbers of requests from educators for advice on how to integrate technology into schools, Apple Computer has hired a group of nationally recognized educators to act as regional Educational Technology Consultants. These consultants are full-time Apple employees and plan to work with administrators and state officials to identify major educational-technology issues. In addition, they will advise them on long-range planning to implement state and district technology-based programs.

Because the Educational Technology Consultants are educators themselves, they will also work closely with Apple Computer's regional and corporate education-marketing representatives to keep them up to speed on the concerns and requirements of the nation's schools. With the addition of educational consultants to its ranks, Apple looks forward to a more meaningful partnership between itself and schools. —*JB*

FAREWELL, YOCAM

After ten years with the company, Apple Computer group president and one-time chief operating officer Delbert Yocam, 44, announced in October that he would leave Apple in November 1989. Yocam, a staunch supporter of the Apple II, was in charge of Apple's educational markets and activities in the Pacific Rim.

In the year prior to his departure, Yocam will concentrate on his Pacific Rim efforts, with education reorganized as a unit under the supervision of group president Allan Loren. —*BL*

WHOOPS!

Although the Apple IIc Plus wasn't officially announced by Apple until last September 16 at AppleFest in San Francisco, the computer's name had appeared in print 14 months earlier—in an official Apple book released to the public no less! Page 222 of *Apple IIGS Firmware Reference* published by Addison-Wesley contains a table of machine-identification bytes programs use to distinguish among different computers. There at the bottom, listed plain as day, is the Apple IIc Plus. Guess an editor was asleep at the word processor when that page was proofread.

In all fairness, the machine-identification byte listed for the IIc Plus actually corresponds to the revised Apple IIc with UniDisk 3.5 ROMs. The real IIc Plus has a value of $05 (not $00 as listed) in location $FBBF. Also listed in the table is a so-called IIe Plus with an ID byte that actually belongs to the enhanced Apple IIe. —*OWL*

MODEM MADNESS

Talk is cheap, but a 1200-baud modem for only $69.95? First Class Peripherals is making this unprecedented offer to draw attention to its extensive line of hard-disk drives for the Apple II. If you are planning to buy a Sider drive, now may be the time to act, because FCP will throw in a free modem with each hard-disk-drive purchase, while supplies last.

FCP has licensed the rights to Migent's Pocket Modem, a miniature 300/1200-bits-per-second Hayes-compatible modem, which it will market as the Travel Modem. For $70 you don't get any software, but Hayes AT-command-set compatibility assures that the Travel Modem will work with most telecommunications programs.

With appropriate cables available separately from Apple dealers, the external modem connects to the serial port on a IIGS or IIc Plus and can be used on a IIe equipped with a serial card. Its small size is especially attractive to users with limited desk space or those who want to take their computer system on the road.

For more information, contact First Class Peripherals, 3579 Highway 50 East, Carson City, NV 89701; (800) 982-3232 or (702) 883-8200. —*OWL*

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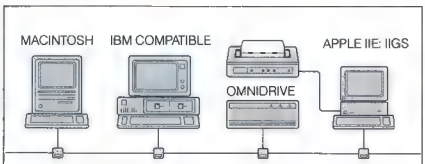

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NEWSPLUS

AN EAGLE, A BIRDIE, AND AN APPLE II

And the question is: What three things are associated with championship golf?

An Apple?

Don't be too quick to exclude the Apple II. Golf superstar Jack Nicklaus has joined the ranks of computer-game endorsers with Accolade's Jack Nicklaus' Greatest 18 Holes of Major Championship Golf.

Nicklaus has signed a three-year agreement to develop golf simulations in association with Accolade, whose Mean 18 has been a best-seller among computer-golf enthusiasts. Jack's Greatest 18 is scheduled to be available for the IIgs before Christmas 1988. —*BL*

COMPUTER MUSEUM REVISES KIT

The Computer Museum in Boston has been offering a revised edition of its Educational Activities Kit since fall. The kit features a short history of computer technology, covers how a computer works, and includes 20 different ways to teach computer skills without a computer.

The revised kit also incorporates a list of computer-education publications and resources, a glossary of computer terms, and information about the Computer Museum. The kit is available for $5 from Education Director, The Computer Museum, 300 Congress Street, Boston, MA 02210. —*SBC*

BY TOM MURRAY

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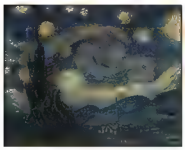

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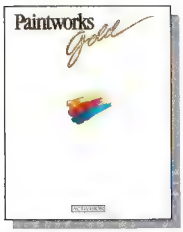

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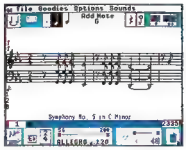

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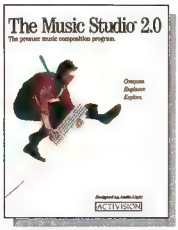

"...a choice product for amateur and professional musicians."

The Apple IIGS Buyer's Guide, Summer 1988

ACTIVISION

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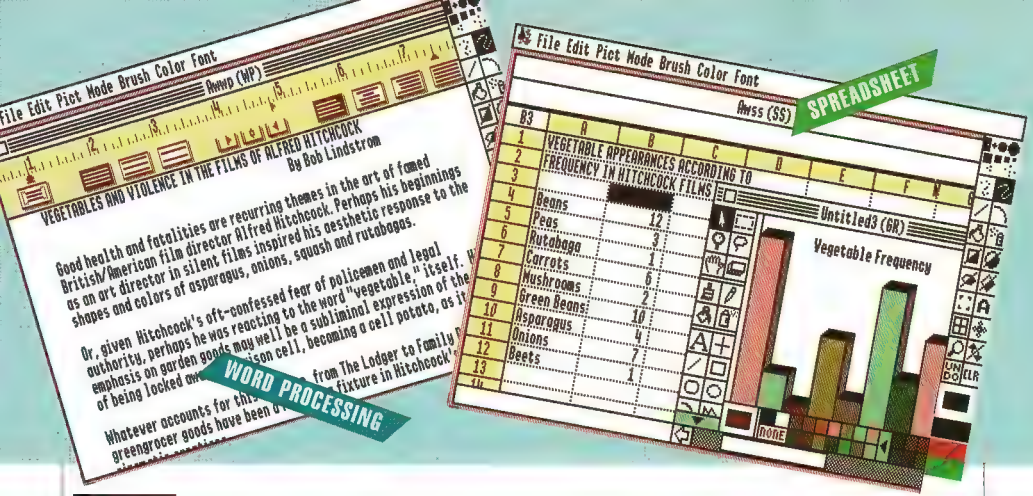

File Edit Pict Mode Brush Color Font
Awwp (WP)
VEGETABLES AND VIOLENCE IN THE FILMS OF ALFRED HITCHCOCK
By Bob Lindstrom
Good health and fatalities are recurring themes in the art of famed British/American film director Alfred Hitchcock. Perhaps his beginnings as an art director in silent films inspired his aesthetic response to the shapes and colors of asparagus, onions, squash and rutabagas.
Or, given Hitchcock's oft-confessed fear of policemen and legal authority, perhaps he was reacting to the word "vegetable" itself. His emphasis on garden goods may well be a subliminal expression of the fear of being locked
Whatever accounts for this
greengrocer goods have been
from The Lodger to Family
fixture in Hitchcock
WORD PROCESSING
File Edit Pict Mode Brush Color Font
Awss (SS)
SPREADSHEET
B3
VEGETABLE APPEARANCES ACCORDING TO
FREQUENCY IN HITCHCOCK FILMS
Beans
Peas 12
Rutabaga 3
Carrots 1
Mushrooms 6
Green Beans 2
Asparagus 10
Onions 4
Beets 7
1
Untitled3 (GR)
Vegetable Frequency
none

COVER STORY BY BOB LINDSTROM

APPLEWORKS GS

A classic transformed

AppleWorks GS is the shopping mall of IIGS software. And Claris Corporation, publisher of the new integrated package, is hoping that IIGS owners will park that disk in the drive and find themselves in a one-stop productivity center. With six modules—word processor, spreadsheet, database, graphics editor, page layout, and telecommunications—three more than AppleWorks "Classic,"—AppleWorks GS may establish itself as *the* application program for IIGS owners. And it's open for business 24 hours a day.

One Convenient Location

Integrated software packages such as AppleWorks and AppleWorks GS unite the features of several application modules into a single program. With modules sharing both commands and data, you can easily mail-merge an address database into a word-processed form letter or graph spreadsheet values in a drawing program.

With all that power under one roof, integrated programs are a good choice for both beginners, who appreciate the single command set, and old hands, who become master data jugglers.

Reality is often more limiting than fantasy, however. Integrated programs can consume large amounts of disk space and RAM to run efficiently. Furthermore, even though combining several modules can make the whole more than the sum of the parts, integration can also force a compromise in features and performance.

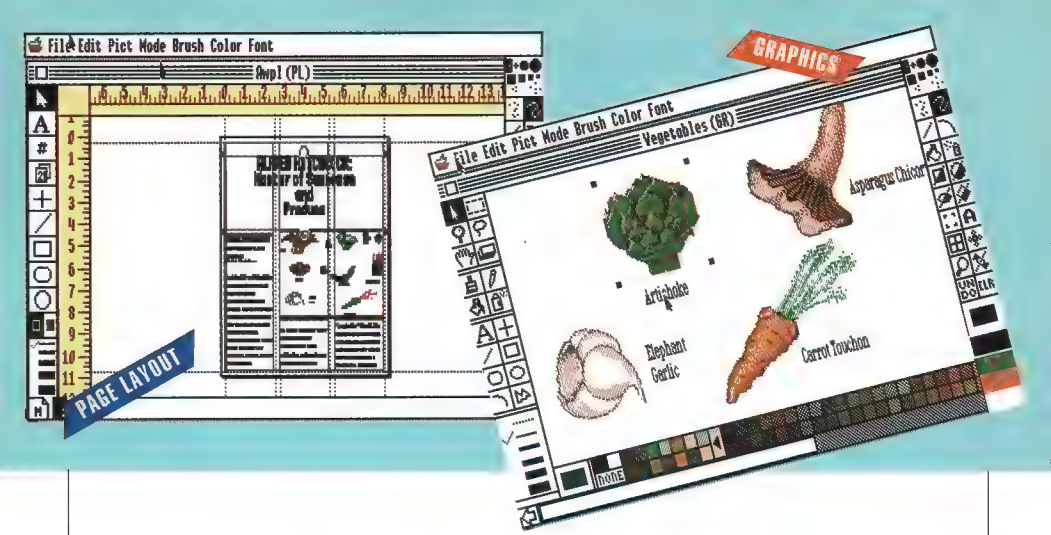
When AppleWorks appeared, with its integrated word-processing, spreadsheet, and database modules, it quickly established itself as a perennial chart-topping best-seller. Users liked the ability to shuttle information between modules from a simple set of command menus. Each module had most of the features necessary for day-to-day work. It was a product that met the requirements of most Apple II users, so it now dominates the Apple II productivity market.

Although AppleWorks benefits from the additional speed of the IIGS, it does not access the distinctive powers of that computer's graphics and mouse interface. A programming team at StyleWare started developing GSWorks as a IIGS-specific alternative to AppleWorks. StyleWare had already demonstrated its IIGS prowess with TopDraw and MultiScribe GS. Previews of GSWorks at the AppleFest Boston show in May 1988 caught the interest of the GS community.

It also caught the eye of Claris Corporation, and in the summer of 1988, Claris purchased StyleWare and moved key members of the Texas-based programming team to California, including president Kevin Harvey (see interview).

The result of this union is AppleWorks GS, essentially the same program as GSWorks but enhanced

This article is a product description of Claris' AppleWorks GS. A full review of the product will appear in a future issue of A+.



by Claris' quality control, after-sales telephone support, and a hefty 600-page (!) manual.

Mall Crawling

Within the six modules of AppleWorks GS (AWGS), most Apple IIGS users will find the features and functions they require in productivity software.

The word-processing module includes standard cut/paste functions and a customizable on-line dictionary. The spreadsheet module incorporates a variety of cell formats and a built-in graphing utility. The database module features easy record design and data entry. The telecommunications module includes several file-transfer protocols. The graphics tools boast a unique combination of bit-mapped and object-oriented image manipulation. And the page-layout application is aimed at the creation of newsletters and fliers.

In addition, although the individual modules are not as powerful or full-featured as stand-alone applications, their ability to exchange and massage data brings versatility you rarely encounter when using several discrete programs.

Charts you create in the spreadsheet module become graphics documents you can refine in the graphics editor. Database reports are generated as word-processing files for custom formatting. You can import graphics files into the page-layout module to add visual style to desktop publications.

More than any other aspect of AppleWorks GS, its visual approach separates it from the competition, including the original AppleWorks.

In the best spirit of the IIGS, most of the features of AppleWorks GS are controllable with the mouse and pull-down menus, and, wherever possible, menu choices are standard across all the program modules. Learn one section of AppleWorks GS, and you're on your way to learning them all. For those who prefer to keep their digits on the keyboard, ⌘-key combinations are quickly available for commonly used commands.

Interior Design

Creating a IIGS-specific integrated package clearly meant more to the creators of AppleWorks GS than making a mouse/menu interface. In designing the various sections of the AWGS program, the Claris/StyleWare team has capitalized on the graphic excellence of the IIGS to produce software with a remarkably visual style.

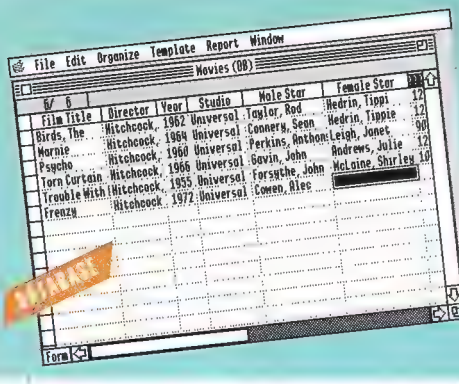
The word processor works on the WYSIWYG (What You See Is What You Get) principle. Designing records and forms in the database is literally a matter of drawing fields on the screen. Page layout consists of designing boxes that are to be filled with text and images. AppleWorks GS is a complex program made surprisingly intuitive by its inventive visually oriented procedures.

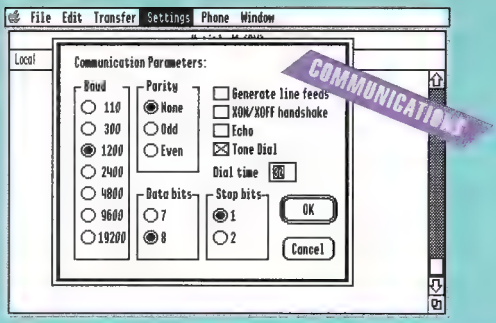
More than any other aspect of AppleWorks GS, this visual approach separates it from the competition, including the original AppleWorks. At the same time, however, the limited speed of the IIGS hardware can make that visual interface a sluggish irritant, particularly for users familiar with the less intuitive but considerably accelerated operation of the original AppleWorks.

Words 'R' Us

Users of MultiScribe GS (now published by Claris) will be overcome with déjà vu while they are using the AWGS word-processing (WP) module. Editing, short-cut commands, screen layout, and menu design in the two programs are virtually identical, with some improvements in the newer program.

Like MultiScribe GS, the WP





module brings Mac-like word and image processing to the IIGS. Text formatting is dictated by rulers inserted into the text. Fonts are available in a range of styles and sizes. You can import graphics from the graphics module or an AWGS-compatible paint program.

In addition to the customary word-processing features, AWGS's word-processing module boasts several special capabilities:

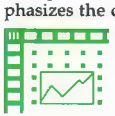
•A statistics screen that displays a running count of characters, words, lines, paragraphs, and pages.

•A menu-driven Print Merge with the database module that clearly "walks" you through creating merge fields in a form letter and accessing the appropriate database.

•An 80,000-word spelling checker and 470,000-word thesaurus, as well as user-editable dictionaries.

Math Boutique

In the style of Microsoft's Excel, the spreadsheet (SS) module emphasizes the convenient mouse selection of cells and formulas.



You can reference a cell by clicking in it, highlight groups of cells and move them with the mouse, and use the mouse to choose from 73 mathematical functions on a scrolling menu. The obscure "slash" commands of Lotus 1-2-3 and VisiCalc are relics of the past in this context. Even so, quick key-command substitutes are available for common operations.

As a nod to II color, negative results can appear in red or, traditionally, in parentheses. To temper the speed liabilities of the IIGS, automatic recalculation is intelligent and crunches only those cells that have been changed since the last calculation. You can also select manual calculation.

An automatic graphing function provides bar, 3-D bar, pie, line, or scatter charts based on SS data and outputs them as graphics documents. You must manually draw labels into charts in the graphics module, however—a definite inconvenience when you want to be more accountant than artist.

Information Booth

In AWGS's visually intuitive database (DB) module, you create records and report forms by drawing field boxes on the screen. They indicate how much data will be visible but do not restrict the size of the field entry, which can be up to 255 characters. As with formulas in the spreadsheet module, you can select field type and format from menus that contain all the options.

A special field type is the graphic field, which can reference graphics files from within the database. It lets you crop or scale pictures to fit the record design, but the entire graphic remains intact on disk. This feature makes AWGS an ideal choice for keeping track of computer art or page layouts.

Two record views are available: a full-screen, scrollable form display and a spreadsheet-like list display with or without grid lines.

Reports are generated as WP files ready for retouching. The concept is good but, in practice, produces some awkward formatting problems when you're trying to align data with field titles.

Art Gallery

Inventive as the DB module is, the graphics module (GR) of AppleWorks GS may be the program's most innovative section. The module combines elements of bit-mapped paint and object-oriented draw programs, resulting in a versatile hybrid.

The usual painting, flipping, and scaling tools are available for artists. The difference is that you can redefine individual bit-mapped images as objects and relocate or layer them at will. This ability is a real benefit for importing specific graphic elements into a page layout and provides intriguing possibilities for jigsawing pictures together from individual graphic elements.

What is sacrificed for this mix of object, bit-mapped, and desktop-publishing graphics is the 3-D proportioning, stencil creations, and other powerful features of dedicated paint programs such as Deluxe-Paint II and Paintworks Gold.

The Phone Shop

Even a novice can be on-line and telecommunicating within a few minutes with the AWGS's communications module (CM). You can use information services such as CompuServe and GEnie as well as exchange files with

other computer owners.

As in the other modules, choosing a configuration from the menu selections is a simple matter. You enter all necessary information on communications parameters (baud rate, parity, and the like) into a dialog box and save it for future communication sessions.

Although a phone book is available for saving and automatically dialing frequently called numbers, the module makes no provision for automatically transmitting passwords or account numbers, a common feature in dedicated telecommunications programs.

While you're on-line, all text exchanges are stored in a scrollable review buffer that holds up to 256 lines of text. It lets you review passages that may have passed by too quickly the first time. You can cut text to the clipboard or capture it in a buffer and save it to disk as a WP file.

File-transfer protocols include XModem, XModem CRC, and YModem. Files downloaded in Binary II are automatically converted and saved to disk.

Newsstand

Don't expect the *New York Times* to adopt the page-layout (PL) module of AWGS as a desktop-publishing (DTP) standard.

It's a midlevel program not aimed at the publishers of professional or even serious newsletters. It's for occasional DTP users who need a nice-looking announcement, interoffice memo, or club newsletter.

On-screen rulers and dotted-line guides help in page design, but the lack of pica or centimeter measurements adds unnecessary guesswork to the process.

You can create left and right master pages and carry them through the entire document or override them as required. It isn't possible to generate a library of page templates and load them into separate pages of a multipage document, though. You either use the master pages or hand-tool a replacement page design.

Nonetheless, the PL module does offer some flexibility in importing text and graphics and editing text that has been flowed into text boxes on-screen. You can link text boxes and flow text from col-

FILE FORMATS IMPORTED BY APPLEWORKS GS

Module:	File format:
WORD PROCESSING	
	AppleWorks GS word processing AppleWorks word processing MultiScribe GS ASCII text
DATABASE	
	Database: ASCII text — tab and carriage return delimiters ASCII text — space and carriage return delimiters ASCII text — carriage return delimiters with number of fields per record specified **Graphics:** AppleWorks GS graphics Apple Preferred Format (APF) Paint (PNT), PICT Screen (320 and 640)
SPREADSHEET	
	ASCII text — tab and carriage return delimiters ASCII text — space and carriage return delimiters ASCII text — carriage return delimiters with number of rows specified
GRAPHICS	
	AppleWorks GS graphics Apple Preferred Format (APF) Paint (PNT), PICT Screen (320 and 640)
PAGE LAYOUT	
	Word Processing: AppleWorks GS word processing AppleWorks word processing MultiScribe GS ASCII text **Graphics:** AppleWorks GS graphics Apple Preferred Format (APF) Paint (PNT), PICT Screen (320 and 640)
COMMUNICATIONS	
	AppleWorks GS word processing AppleWorks word processing MultiScribe GS ASCII text

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umn to column and from page to page. Unfortunately, the module makes no provision for flowing text around graphics. For that, you'll have to use ingenuity to locate text boxes around graphics boxes. Layout here is largely a squares-and-rectangles affair.

When faced with the prospect of six integrated modules, an experienced IIGS user feels a chill go up the spine. If a single application can decelerate the IIGS to a snail's pace, what will six modules in multiple windows do?

Screen updates in AWGS are reasonably brisk. The programming team has cleverly programmed around Apple's QuickDraw routines to maximize performance. Still, AWGS will have most IIGS enthusiasts wishing that their hardware had a little more muscle and a lot more acceleration.

Furthermore, the minimum recommended 1.25Mb of RAM is just that: a minimum. We suggest at least 2Mb of RAM for optimum performance. Six modules and their associated data know little or nothing about RAM conservation. AWGS is a lot of program, and it requires a lot of computer in which to run. Not to mention a fairly healthy bank account to cover its $299 price tag (upgrade options are available to owners of AppleWorks and StyleWare products).

AppleWorks GS is a tantalizing achievement that points up both the increasing sophistication of Apple II productivity software and the sometimes maddening limitations of the IIGS hardware. Even so, it offers a complete work environment that Claris is betting will be attractive to multitudes of IIGS owners, just as the original AppleWorks gained converts in the Apple IIe/c community. ✚

VITAL STATISTICS

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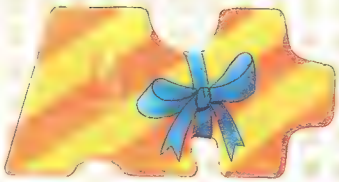

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INTERVIEW BY BRENDA McLAUGHLIN

An interview with Claris' Kevin Harvey

APPLEWORKS GS AND BEYOND

Kevin Harvey's cubicle looks like the many others that surround it in the Claris headquarters in Mountain View. And it's a long way from his former office in Houston. In fact, the only indication that the ex-StyleWare president sits here is a framed advertisement for DeskWorks. But Harvey didn't come to Claris for the office environment; he arrived looking for new challenges.

The journey from Rice University to Mountain View, California, was brief and intense for Harvey. With a few friends, he started StyleWare to create Apple II products in 1986 while still a student at Rice. The company's first product, MultiScribe, was an immediate success. As MultiScribe GS, TopDraw, DeskWorks, and Font Library followed, the company grew from 3 to 35 employees.

Two years later, a program called GSWorks was being readied for market, and the unbelievable (some would say the inevitable) happened. StyleWare was purchased by Claris Corporation; GSWorks got a new name, AppleWorks GS; and Kevin Harvey got a new job.

As Product Line Manager at Claris, Harvey is in charge of AppleWorks, AppleWorks GS, MacWrite, and MacPaint. Although AppleWorks GS was still incomplete when Claris acquired StyleWare, Claris became only marginally involved in the development effort. Instead, the StyleWare team continued to work in Houston while Claris tested the results in Mountain View. It was Harvey who oversaw and coordinated this long-distance development effort. In this interview with A+'s Brenda McLaughlin, Harvey revealed some of his thoughts on AppleWorks GS and on the Apple II market.

A+: *What first interested you in computers?*

KH: I guess it was a couple of things. I entered college as a math or physics major and then enrolled in a computer-science course during my freshman year. I thought it was pretty interesting, sort of my first introduction to computers. I had actually taken a course or two in high school BASIC but hadn't really gotten into it. I got a summer job at the Houston Independent School District working on Apple II computers and then became an electrical-engineering/computer-science major. I was working on computers at school and at work. Then a year later we started writing MultiScribe.

It seemed like there was a lot of new technology in software, meaning a new interface, and it wasn't being brought to the Apple II. Apple II people were sort of being left out and hearing that their computer couldn't do what other new computers could, and that just wasn't true. An Apple II is powerful enough to drive a menuing, windowing interface. I knew that would be very popular, and that's what happened with MultiScribe.

A+: *Did you start StyleWare right after you graduated from college?*

KH: StyleWare was started in 1985, in between my sophomore and junior years. There were three founders. One was a friend from

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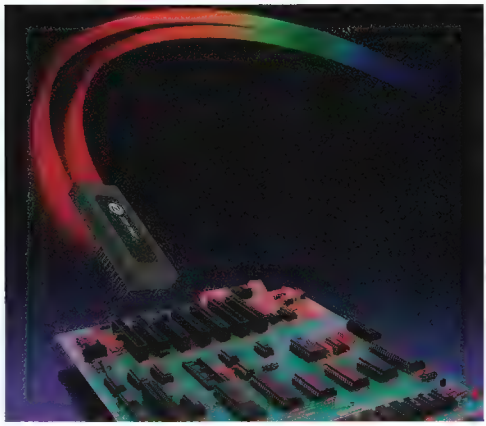
CIRCLE 302 ON READER SERVICE CARD

The Word Is Out
Zip Chip Is In



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"The *Zip Chip* truly forms the bridge between the Apple II of yesteryear and the Apple II of tomorrow... forever!"
Richard Doherty, Computer Editor, Electronics Engineering Times (EET)

"The *Zip Chip* uses a substantially different technique for speeding up Apple II software... the same technique big computers use, called cacheing. Hurray for the *Zip Chip* and the changes it is sure to bring to the Apple II world!"
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"After installing my *Zip Chip* and seeing it work, I can't even **think** about using my computer without it. We love it!"
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TECHNOLOGY

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Rice University, and another was a friend from work. The friend from Rice dropped out of StyleWare after about a year, sort of lost interest. Another friend of mine, Robert Shaw, in the meantime had sort of risen to take his place. So the three partners for most of StyleWare's life were Dave MacDonald, Robert Shaw, and myself.

In May of '86, we released MultiScribe, a Mac-like word processor for the IIe that did really well. And then, less than a year later, in March of '87, we released MultiScribe GS, which did really well. At that time, though, I knew I wanted to do an AppleWorks for the GS, an integrated package to compete with AppleWorks was the idea. And so in August of '87, I started writing the core to AppleWorks GS and laying out what we were going to do.

A+: *Were there things you didn't like about AppleWorks? Did you want to fill in gaps or . . .*

KH: AppleWorks took the technology of the Apple II to the limit when it came out in '84. But given the new machine, the Apple IIGS with its more graphics-oriented interface and increased power and memory, I thought we could give people a more state-of-the-art application.

AppleWorks GS has more functions and a more Mac-like interface than does AppleWorks. I thought people learning how to use AppleWorks were going to be left behind because its interface wasn't going to come along with the new machines. So it made more sense to give people an interface that, once learned, could help them learn other applications easily. When I say more state-of-the-art, that's what I mean. That doesn't mean the AppleWorks interface is wrong; it's just different from what I see as an emerging industry standard.

A+: *How did the Claris acquisition affect the development of AppleWorks GS?*

KH: The acquisition didn't affect the product featurewise at all. We maintained the exact feature set that we'd intended—we added a feature or two that were requested by Claris, real minor things like the way titles worked on spreadsheets, but we didn't take anything out.

A+: *Where was the product in the development process when Claris bought StyleWare?*

KH: It was very close to alpha [the first testing stage] at the acquisition. The product is much better off under a Claris label than a StyleWare label because Claris has a strong commitment to support products and a lot of resources allocated for that. At StyleWare, a much smaller company, we would have been much more cash-flow-oriented, and I'm not sure people would have seen the kind of quality they'll see from Claris on the support side. We would have done our best, but we just wouldn't have had the same kind of resources. I think Claris is known across the industry for good support. The people here really care about the customer, and they seem to go out of their way to make sure they get good support.

A+: *Are you happy with the results of the Claris buy-out?*

KH: I think that it makes a lot more sense for AppleWorks GS to be offered as a complement to AppleWorks than as a competitor, which is what it would have been from StyleWare. I'd like to see AppleWorks GS sell Apple IIGS computers as well as AppleWorks has in the past. In the past year or so, I think the Apple II has lost a little of its luster compared to other machines. People are looking at the age of the software technology that they're using and saying all the new stuff is on the other machines.

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VT-100 Emulation	Y	N	N
Expanded RAM cards supported	Y	N	N
Capture buffer	2.5 Mb	N	8 pages
Copy buffer	45K	17K	36K
Dial lists	unlimited	16	—
File transfer protocols	7	4	3
Copy files, Format disk	Y	N	N
Load/Save AppleWorks™ files	Y	N	N
Editor commands	42	12	14
Set page margins	Y	N	N
Print formatting commands	Y	N	N
Automatic learn keyboard macros	Y	N	N
Procedure macros	unlimited	N	N
Commands available	20	N	N
PRICE	$129.00	$129.95	$99.95

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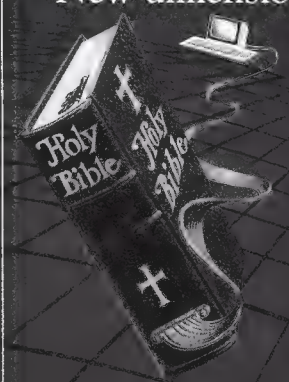

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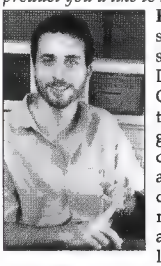
CIRCLE 158 ON READER SERVICE CARD

We really want to give them something that is at the same technology level as on other machines.

With AppleWorks GS, we're able to really show just how good the GS is. Some of our capabilities, such as drawing and painting at the same time, are very new ideas that the Mac doesn't even have yet. The scope of the product, with six modules and a spelling checker, is larger than that of any other integrated package. That might be too much. Hopefully not.

A+: *Is there any particular Apple II product you'd like to see in the future?*



KH: I'd like to see more GS software, ProDos 16 or GS/OS, that follows the rules—the graphics standards, the desk-accessory standards. That is not happening as much as I'd like. We've always followed the rules, but we've felt lonely doing it.

It's not that I think people shouldn't go and do something a different way when they have a good reason to do it, but it doesn't make sense to have a different interface for every product unless you have some unique interface problem that lends itself to a better interface. And that doesn't happen that often. To me, any product on the Apple II that doesn't use either the Mac-like interface or the AppleWorks interface is a mistake.

A+: *At StyleWare, you got to decide what was exciting and then turn it into a product. Do you think you'll have as much freedom at Claris?*
KH: I think so. I might have to convince a few more people, but Claris is very flexible. I might do fewer small things here, such as desk accessories, that don't make sense as Claris products because of the organization and support costs.

A+: *Do you think Apple sees the GS as a machine that will teach people how to use computers as they move up the line to the Macs?*
KH: Possibly. If somebody has a computer at work and a computer at home, Apple would probably

like to see them use a GS at home and a Mac at work. So one of the things that we'll do here is get our Mac software to work very well with our GS software so that people see consistency between the machines and don't have to learn new interfaces.

A+: *What about people running Macs and IBMs in the office? Will they be able, using GS/OS's FSTs, to bring their files into AppleWorks GS?*
KH: Their text files they can currently convert, but that's the most we've got right now. But the plan is to have files reading and writing directly as soon as possible, so that people's Apple IIs can communicate with their Macintosh or IBM PC computers.

A+: *How do you think Apple's price increases are going to affect the Apple II?*
KH: I have to say I'm really disappointed in the price increases. It means fewer Apple II computers will be sold this Christmas, which is when most are sold. I think we'll definitely see a decrease in sales.

My guess is that Apple found it couldn't produce enough computers to meet demand, so it increased the price so that the numbers would match the numbers it could make, which I think was very shortsighted. It seems that Apple doesn't appreciate the market share; I think more PC clones will be sold this Christmas because of the price increase.

A+: *What do you see happening in the home market?*

KH: The difficulty with the home market is that people have the same software requirements as business—they just don't have as much money to spend on it. So we have to be able to bring out software that's just as good and not charge as much. What I've always been interested in is application software. A good general-purpose application works in an educational environment and the business environment just as well.✚

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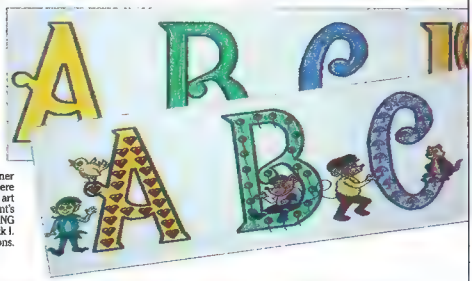

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CIRCLE 289 ON READER SERVICE CARD

APPLES IN SPACE

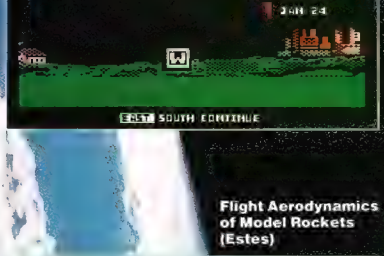
Back in September 1988, when we began designing this issue of *A+*, the editorial staff proudly followed the progress of the successful launch and flight of the Space Shuttle Discovery. Serendipitously, during that time, we found out about Estes Industries, a small company in Colorado that manufactures model-rocket kits; engines; and, now, Apple II software that deals with the aerodynamics and physics of rocketry. We also received an amazing astronomy program called Sky Travel, which lets you stargaze in the past, present, and future. And Apple Computer announced its cosponsorship of the Challenger Center at the Houston Museum of Natural Science.

With a rekindling of national interest in the space program, we decided to take a close look at what Apple II computers can do to unravel the mysteries of space and space travel. In the following pages, you will find information about software packages that should appeal to novice astronauts and Galileo types alike. We also tell you about two ambitious efforts to bring simulated space travel to kids on Earth in Apple II-powered simulators. So, strap yourself in and read on—until frequent-flier bonuses apply to flights to Mars, Apple IIs are the only way to go!

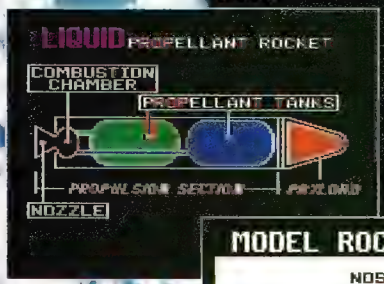
PHOTOGRAPHY BY BRUCE KLIEWE

Sky Lab (MECC)

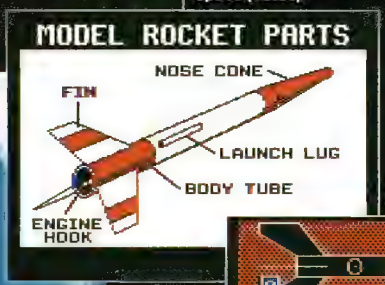
Sky Travel (Microillusions)



Flight Aerodynamics of Model Rockets (Estes)



In Search of Space (Estes)



Physics of Model Rocketry (Estes)

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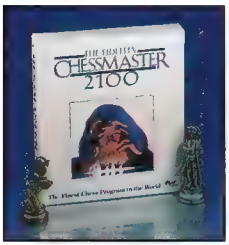
Chessmaster 2100 by Electronic Arts



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Chessmaster 2100 ..... **33.**

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California Games for the IIGs ..... **29.**

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Disk Drive Cleaning Kit *(3.5" Drives Only)*	20.
Apple Security System	34.
Printer Muffler 80	43.
Printer Muffler 132	58.
Printer Muffler Stand 80 or 132	24.
AntiGlare Filter IIGs	39.
System Saver *(Platinum or Beige)*	69.
System Saver *(IIGs)*	79.
New Turbo Mouse *(Reg. or ADB)*	119.
Kraft	
Universal 3 Button Joystick *(IIe or IIc)*	34.
Koala Technologies	
Koala Pad Plus w/Graphics Exhibitor	84.
Kurta IS ADB Tablet w/stylus *(IIGs)*	339.
MDIdeas Digitizer Professional *(IIGs)*	139.
The Conserver *(IIGs Switched Surge Suppressor w/Fan)*	99.
SuperSonic *(Stereo Card for IIGs)*	49.
SuperSonic Digitizer *(IIGs)*	49.
Mouse Systems A+ Mouse *(IIc)*	65.
A+ ADB Mouse *(IIGs)*	85.
MousTrak MousePad 7"x9" Size	8.
MousePad 9"x11" Size	9.
MousePad L/F *(Low Friction)*	9.
Ribbons *Available colors: black, blue, brown, green, orange, purple, red, yellow, silver or gold*	
ImageWriter Ribbon-Color	4
ImageWriter Ribbon-Black six pack	20.
ImageWriter II - 4 Color Ribbon	9.
ImageWriter Rainbow Pk. (6 Colors)	20.
Street Electronics Cricket *(IIc)*	125.
Echo IIb Speech Synthesizer *(II+, IIe, IIGs)*	109

TimeOut SuperFonts by Beagle Brothers

TimeOut SuperFonts lets you dress up your word processing docu ents easily and quickly without ever leaving AppleWorks! *TimeOut SuperFonts* pops up inside AppleWorks to let you access attractive Macintosh fonts in a variety of styles and sizes. You can print text in sizes from 6 to 127 points, with any combination of bold, italic, underline, shadow, and outline that you desire. *TimeOut SuperFonts* features high quality and 50% reduction printing modes, allows you to easily place graphics in your word processing files, and preview your page before printing. *TimeOut SuperFonts* with a **free** paint program, and many fonts with special and foreign characters.

TimeOut SuperFonts ..... **45.**

to Polish Up Your Apple

Specials good through
January 31, 1989

Communication Software

Activision		Grolier On Line Encyclopedia	32.
Teleworks Plus *(IIGs)*	66.	**Pinpoint**	
Checkmate Technology		Point-To-Point	74.
ProTERM *(IIGs, IIe, IIc)*	95.	**United Software Industries**	
Compuserve		ASCII: Express Pro. Prodos or Dos 3.3	72.
Compuserve Starter Kit	24.	ASCII: Express Mousetalk 1.5	69

Wordbench by Addison Wesley

Wordbench is the new way to prepare documents that goes beyond word processing. *Wordbench* lets you start your project with a full-featured Outliner and Notetaker, helping you organize your ideas, references, and notes, long before you begin to write the first draft. Then, unleash the *Wordbench* Writer to pull all of your work together clearly and effectively, without retyping. *Wordbench* lets you add creativity and correctness to your documents with its Brainstormer to help put your creative processes to work, a Thesaurus to help find the perfect word, and a Spellchecker to help you mind your "P's" and "Q's". And when it's time to print, *Wordbench* lets you add the text formatting you need to add impact and style to any presentation.

Wordbench ..... **99.**

Apple Compatible Computers

Video Technology		Laser 190A Printer	
Laser 128 Computer	379.	*(Imagewriter Compatible)*	239.
The Laser 128 includes an Expansion Slot, RGB Video Output, Parallel Printer Port, and a 10 Key Numeric Keypad!		Laser RGB Monitor	399.
		Laser Amber Monitor	99.
Laser 128EX Computer	459.	Laser 128 2nd Disk Drive *(5¼", ½ height)*	89.
The Laser EX includes a Built-in RAM Expansion Board, Universal Disk Controller, Built-In Expansion Slot, and Ports for all Peripherals!		Laser 128 800K 3.5" Drive w/Controller	259.
		Laser 128 Cables *(Parallel, Serial, RGB or Modem)*	16.
		Laser 128 Mouse	49.

Backup Utilities & Boards

Alpha Logic		**FWB Software**	
Locksmith 6.0	36.	Disk Util II *(IIGs)*	52.
Central Point Software		**Roger Wagner**	
Copy II Plus *(5 25" & 3 5" Bit Copy)*	23.	HyperStudio *(IIGs)*	85.

Quicken by Intuit

Quicken is the fast, easy way to cut through personal and small business paper work. In minutes you'll get a handle on your finances without having to bother with all the burdensome terminology and repetitive entry that most accounting packages require. *Quicken* is flexible; it lets you enter an unlimited number of transactions, expense and income categories, and checking accounts. *Quicken* lets you write checks, make and track budgets, manage cash flow, and even reconcile unbalanced accounts. *Quicken* is ideal for people who need to manage any sum of money in a small amount of time!

Quicken ..... **34.**

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RamWorks Basic *(256K or 512K)*	Call
RamWorks III *(64K to 3 MB)*	Call
PC Transporter *(384K to 768K)*	Call
PC Transporter Installation Kit *(IIe or IIGs)*	Call
RamFactor *(256K to 1MB)*	Call
Z-RAM Ultra I *(256K or 512K)*	Call
Z-RAM Ultra 2 or 3 *(256K to 1MB)*	Call
GS-RAM *(256K to 1.5Meg)*	Call
GS-Ram Plus *(1MB to 6MB)*	Call
Phasor *(II+, IIe, or IIGs)*	139.
TransWarp Accelerator *(II+ and IIe)*	175.
ViewMaster 80 *(IIe)*	129.
Z-80 Plus *(II+, IIe, IIGs)*	125.
Checkmate Technology	
MemorySaver *(IIGs)*	125.
Orange Micro	
RamPak 4GS *(512K Exp. to 4MB w/Utilities)*	139.

TML BASIC for the IIGs by TML Systems

TML BASIC is a modern, 16-bit, compiled version of BASIC designed for a broad range of programming applications on the IIGs. *TML BASIC* features advanced command statements, a built-in debugger, and complete access to every IIGs Toolbox routine. Its fully integrated programming environment allows you to write, edit, compile, and run applications speedily and simply without ever leaving *TML BASIC*. It compiles 6,000+ lines per minute and allows you to run your program immediately in memory or to save it as a standalone PRODOS 16 application.

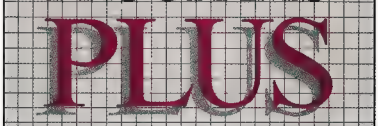
TML BASIC for the IIGs ..... **84.**

Educational Software

Activision Term Paper Writer	34.
Barron's	
Computer SAT Revised Version	34.
Britannica	
Body Transparent or States & Traits	25.
JigSaw *(IIGs)*	25.
Algebra I, 2, 3, or 4	25.
Algebra 5 & 6	31.
Designasaurus	24.
Designasaurus *(IIGs)*	28.
Millionaire II	39.
Broderbund Type!	19.
Science Tool Kit Master Module	50.
Science Tool Kit Module I, II or III	26.
Where in the World is Carmen Sandiego?	25.
Where in the USA is Carmen Sandiego?	29.
Where in Europe is Carmen Sandiego?	29.
Coda	
Music Class Courses 1, 2 or 3 *Special*	35.
Music Class Courses 4 or 5 *Special*	27.
Music Class Courses 1-5 *(Bundle)* *Special*	149.
Fundamentals, Rhythm, or Ear Training	35
Music Symbols or Note Reading	27.
Compu-Teach Once Upon A Time	25.
Stepping Stones Level I or II	25.
Joshua's Reading Machine	25
See the U.S.A.	37.
Davidson & Associates	
Math Blaster Plus *(IIGs)* or Word Attack Plus *(IIGs)*	29.
Alge-Blaster or Math Blaster Plus	29.
Grammar Gremlins or Read 'N' Roll	29.
Spell-It or Word AttackPlus!	29.
Math & Me *(IIGs)* or Reading & Me *(IIGs)* *Special*	29.
Math & Me or Reading & Me	25.
Electronic Arts	
Mavis Beacon Typing	30.
Mavis Beacon Typing *(IIGs)*	37.
First Byte/Electronic Arts	
Mathtalk, Kidtalk, First Shapes, Speller Bee, or Smoothtalker *(All IIGs, each)*	33.
Mathtalk Fractions or First Letters & Words *(All IIGs, each)*	33.
Great Wave Kidstime II *(IIGs)*	24.
SpaceLace	20.
Harcourt, Brace, Jovanovich	
Computer SAT	29.
Learning Company	
Reader Rabbit *(IIGs)* or Writing and Publishing Center *(AP or IIGs)*	39.
Writer Rabbit *(IIGs)*, Think Quick *(IIGs)* or Rockys Boots *(IIGs)*	34.
Magic Spells *(IIGs)* or Math Rabbit	27.
Gertrude's Secrets *(IIGs)*	24.
Think Quick, Writer Rabbit or Math Rabbit *(IIGs)*	32.
Reader Rabbit, Magic Spells or Rocky's Boots	27.
MindPlay	
Easy Street or Cotton Tales	35.
Mindscape Crossword Magic	34.
Perfect Score SAT	48.
Pinpoint	
Micro Cookbook *(IIe or IIc)*	31
Bon Appetit	37.
Sensible Software	
Report Card II *(IIe & IIGs)*	37.
Simon & Schuster	
Speed Reading Tutor IV or Typing Tutor IV	27.
Speed Reader Tutor IV *(IIGs)*	34.
Typing Tutor IV *(IIGs)*	34.
Spinnaker Kidwriter Gold *(IIGs)*	31.
Kindercomp Gold	26.
Homework Helpers Writing or Math *(IIe or IIGs)*	34
Typing Made Easy	34.
Facemaker: Golden Edition	27.
Kidwriter	27.
Terrapin	
Enhanced Terrapin Logo V3.0	64.
Weekly Reader	
Stickybear Series: Sticky Bear ABC, Car Builder, Basic, Drawing, Math I, Math II, Math Word Problems, Numbers, Opposites, Parts of Speech, Vocabulary Development Printer, Reading, Reading Comprehension, Shapes, Spellgrabber, Typing or Townbuilder *(each)*	24.
Stickybear New Talking Alphabet *(IIGs)*	31.

Entertainment Software

Access Software	
World Class Leader Board Golf	27.
Famous Courses of the World vol. 1 or 2	14.
Accolade Mean 18 *(IIGs)* or Hardball *(IIGs)*	27.
Mini-Putt *(IIGs)* or 4th & Inches *(IIGs)*	27.
Famous Course Disk Vol 2 or Hardball	12.
Famous Course Disk Vol 3 & 4 or Card Sharks	21.
Test Drive or Bubble Ghost *(IIGs)*	21.
Action Software Thunder Chopper	19.
Activision Aliens or Elite	15.
Star Rank Boxing II or Firepower	19.
Jinxter or Rampage	23.
The Last Ninja or Maniac Mansion	24.
GFL Championship Football or Baseball	24.
CrossBow or GBA Championship Basketball	24.
Blackjack Academy *(IIGs)*, The Last Ninja *(IIGs)* or Corruption	27.
GBA Championship Basketball *(IIGs)*, Star Glider or Shanghai *(IIGs)*	29.
Might & Magic or Sky Travel	32.
Music Studio 2.0 *(IIGs)*	59.
Artworx Bridge 5.0	19.
Baudville Dream Zone *(IIGs)*	31.
Ski Crazed	18.
BlueLion Ticket to Hollywood or R.S.V.P.	27.
Ticket to London, Paris, or Spain	27.
Ticket to Washington, D.C.	30.
Broderbund Karateka	15.
2400 A.D. or Autoduel	24.
Wings of Fury *(IIe, IIc, IIGs)*	23.
Championship Lode Runner	23.
Ancient Art of War at Sea	31.
VCR Companion	34.
Ultima IV or Ultima V	39.
Cinemaware Defender of the Crown *(IIGs)* or King of Chicago *(IIGs)*	32.
Kung Fu Master or Commando	15.
Kid Niki or Ikari Warrior	23.
Datasoft Tomahawk	23.
Tomahawk *(IIGs)* or Hunt for Red October	30
Hunt for Red October *(IIGs)*	41.
Diversified Software Research Diversi-Tune	55
Electronic Arts	
Cartooners *(IIGs)* or Puppeteers *(IIGs)*	44.
Chessmaster 2100 *Special*	33
Bards Tale *(IIGs)*, Bards Tale II *(IIGs)*, Instant Music *(IIGs)*, Music Construction Set *(IIGs)*, Bards Tale II, Madden Football, Bards Tale III, or Wasteland	33.
Legacy of the Ancients, Deathlord, Chuck Yeager Flight Sim., Scrabble, Scruples, Zany Golf *(IIGs)*, Halls of Montezuma, Earl Weaver Baseball, World Tour Golf *(IIGs)*, or Skate or Die *(IIGs)*	26.
Strike Fleet, PHM Pegasus or Marble Madness *(IIe or IIGs)*	23
EPYX Sub Battle Simulator *(IIGs)*, Home Video Producer, The Games: Winter Edition, The Games: Summer Edition, or L.A. Crackdown *(IIe or IIGs)*	32.
California Games *(IIGs)* *Special*	29.
Destroyer *(IIGs)*, Street Sports Soccer *(IIGs)*, Finals Assault *(IIGs)*, or Impossible Mission II *(IIGs)*	29.
California Games, Dive Bomber, Street Sports Football *(IIe or IIGs)*, Destroyer, Street Sports. Baseball, Street Sports: Soccer, Sporting News Baseball, Sticker Maker or Sub Battle Simulator	26.
Street Sports. Basketball	14.
Winter Games *(IIe or IIGs)* or World Games *(IIe or IIGs)*	14.
Movie Monster Game or Championship Wrestling	14.
World's Greatest Baseball or Football Game	14.
Summer Games II or Death Sword	14.
Estes Flight	32.
Physics or In Search of Space	18.
Garde Blue Powder Grey Smoke or High Seas	29
Hayden Software Sargon III	14.
Infocom Leather Goddesses Of Phobos or The Lurking Horror	25
Hitchhiker's Guide to The Galaxy	15
Sherlock	24.
Beyond Zork *(IIe or IIGs)* or The Zork Trilogy	34.
Zork Zero, Journey *(IIe or IIGs)* or ShoGun	34
Zork Zero *(IIGs)* or ShoGun *(IIGs)*	41.
Intracorp Murder on the Atlantic *(IIe & IIGs)*	21
MasterPlay Star Saga One! *(AP or IIGs)*	55
Melbourne House Quarterback	19
Quarterback *(IIGs)*, or Barbarian *(IIGs)*	25.
War in the Middle Earth *(IIGs)*	30.
Micro League Sports Micro League Baseball	24
General Manager/Owner Disk	21.
Team Disk	14.
Microprose F-15 Strike Eagle or Silent Service	22.
Silent Service *(IIGs)* or Pirates *(IIe or IIGs)*	26.
Mindscape Indoor Sports or Xevious	19.
Shadow Gate *(IIGs)*, Uninvited *(IIGs)* or Deja Vu *(IIe or IIGs)*	32.
Infiltrator or Bad Street Brawler *(IIGs)*	24.
Balance of Power *(IIe & IIGs)*, Joker Poker, Gauntlet *(IIGs)* or Super Star Ice Hockey *(IIGs)*	29.
Super Star Ice Hockey	27
Gauntlet or Paperboy *(IIe or IIGs)*	25.
PBI Software Strategic Conquest II *(IIGs)* or Cavern Cobra *(IIGs)*	31
The Tower Of Myraglen *(IIGs)* or Alien Mind *(IIGs)*	32.
Sea Strike *(IIGs)* or Monte Carlo *(IIGs)*	25
Share Data	
Concentration, Card Sharks, Jeopardy, Family Feud or Wheel of Fortune	11.
Jeopardy II or Wheel of Fortune II	10
Sierra On-Line Space Quest *(IIe or IIGs)*, or Space Quest II *(IIe or IIGs)*	32.
Kings Quest I, II, or III *(IIe or IIGs)*	32.
Leisure Suit Larry *(IIe or IIGs)*	26.
Thexder *(IIGs)*	24.
ManHunter *(IIGs)* or Police Quest *(IIe or IIGs)*	32.
Mother Goose *(IIe or IIGs)*	19.
Simon & Schuster Star Trek 4 First Contact	27.
Sir-Tech Wizardry or Legacy of Llylgamyn	32.
Return of Werdna	39.
Spectrum Holobyte Gato	12.
Soko-Ban *(IIe & IIGs)*	23.
Gato *(IIGs)* or Tetris *(IIe & IIGs)*	25
Orbiter *(IIGs)*, Wilderness or Dondra *(IIe or IIGs)*	31.
Strategic Simulations	
AD&D Dungeons Mstr. Asst. Vol 1	23
Wizards Crown, Eternal Dagger or Roadwar 2000	26.
Questron II, Roadwar 2000 *(IIGs)* or AD&D Pool of Radiance	30
Chuckamunga, Questron II *(IIGs)* or Typhoon of Steel	33
Sublogic Flight Simulator II	35
Jet	27.
Scenery Disks 1, 2, 3, 4, 5 or 6	16.
Scenery Disks 7, 11 or Western European Tour	20.
Taito Arknoid *(AP or IIGs)*	21
Bubble Bobble *(AP or IIGs)* or Renegade *(AP or IIGs)*	24.



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Reading and Me or Math and Me for the IIgs by Davidson

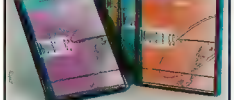
Davidson, a recognized leader in the educational software industry, offers two exceptional learning programs for preschoolers and early elementary youngsters. ***Reading and Me*** teaches children (ages 4 to 7) to recognize letters, learn words, read simple sentences, and understand basic phonics. The program uses twelve easy learning games, all of which operate in Davidson's custom designed Early Learning Interface to teach children effectively and enjoyably. ***Math and Me*** is the ideal introduction to math for youngsters ages 3 to 6. Its twelve learning games teach skills in four basic areas: geometric shapes, numbers, logical patterns, and simple addition.

Reading & Me or Math & Me for the IIgs ..... **29.**

Graphics Packages

Abracadata		**Data Transforms** Printrix 1.1	45.
Design Your Own Home: Architecture *(IIgs)*	65	**Electronic Arts** DeluxePaint II *(IIgs)*	65.
Design Your Own Home: Architecture, Interiors or Landscape	49.	DeluxeWrite w/DeluxePaint II *(IIgs)*	89.
Design Your Own Train	35	DeluxeWrite *(IIgs)*	59.
Architecture Library 1, 2, 3 or 4	21.	Video Title Shop Companion Vol 1	30
Interiors Library 1, 2 or Landscape Library 1	21.	Video Title Shop Companion Vol 2	15.
Activision		**EPYX** Art & Film Director *(IIgs)*	55.
Paint/Write/Draw *(Not Protected IIgs)*	80.	Printmagic	41.
Clip Art Gallery *(IIgs)* or Postcards *(IIgs)*	19.	Create-A-Calendar	21.
PaintWorks Gold or Draw Plus	66.	**PBI Software** Visualizer *(IIgs)*	56.
Baudville 816/Paint *(Works On All Apples)*	46.	Visualizer IIe	47.
Award Maker Plus *(IIe & IIgs)*	24.	**Springboard** Newsroom	36.
Berkeley Softworks GEOS	80.	Springboard Publisher 2.0 *(IIe or IIgs)*	84.
Broderbund		Certificate Maker	26.
Dazzle Draw or Show Off *(IIgs)*	39.	Certificate Maker Library #1	20
Drawing Table *(IIgs)*	62.	Fonts For Springboard Publisher *(IIgs)*	20.
Print Shop Enhanced or Fantavision	29.	Newsroom Clip Art Collection Vol. 1 or 3	18.
Print Shop *(IIgs)* or Fantavision *(IIgs)*	39.	Newsroom Clip Art Collection Vol. 2	23.
Print Shop School Edition	39.	Style Sheets/Newsletters *(IIe or IIgs)*	20
Dazzle Draw School Edition	45.	Works of Art Education, Holidays or Assortment *(IIe or IIgs)*	26.
Print Shop Companion	25.	**Thunderware**	
Print Shop Graphics Library I, II, III or Holiday Ed.	16.	Thunderscan *(IIgs, IIe, and IIc)*	179.
Print Shop Graphics Lib. Sampler Ed. *(IIgs)*	24.	**Unison World** Printmaster Plus *(IIe & IIgs)*	25.
Print Shop Graphics Lib. Party Ed. *(IIgs)*	24.	Art Gallery I or Art Gallery II	19.
		Art Gallery Fantasy	19.

Music Class Courses 1 through 5 by Coda



Music Class course disks teach you to understand, listen to, read, and appreciate music in an easy, enjoyable setting. *Fundamentals* teaches basic scales, note reading, and rhythm. *Rhythm* teaches advanced timing and recognition skills. *Ear Training* teaches melodies and how to detect errors in them. *Music Symbols* and *Note Reading* let you understand all of the complexities and details of printed music notation. Each disk contains tutorial and drill programs, allows you to keep records of progress, selectable skill levels, and feature animated graphic and lively sound. *Music Class* is the easy, effective way for any Apple II (with 64K of RAM) owner to understand the art and beauty in music.

Music Class Courses 1, 2 or 3 ..... **35.**
Music Class Courses 4 or 5 ..... **27.**
Music Class Courses Bundle ..... **149.**

Blank Media

3½" Blank Diskettes		Fuji 3.5" DS/DD *(box of 10)*	19.
Bulk *(Sony)* 3½" DS/DD *(box of 10)*	17	Maxell 3.5" DS/DD *(box of 10)*	20
Centech 3½" DS/DD Color Disks *(box of 10)*	19.	Verbatim DS/DD *(box of 10)*	19.
Sony 3.5" DS/DD *(box of 10)*	18.	3M 3.5" DS/DD *(box of 10)*	20.
		C. Itoh 3.5" DS/DD Color Disks *(box of 10)*	25.

Printers

Brother M-1109AP *(ImageWriter Comp.)*	249.	KXP-1091i/M2 *(192 cps)* NLQ Mode	209.
Okidata		KXP-1092i *(240 cps)* NLQ Mode	349.
Microline 182 *Plus (120cps Dot Matrix 10")*	275.	**Seikosha**	
Microline 320 *Plus (300cps Dot Matrix 10")*	385	Seikosha SP 1000 *(Imagewriter Compatible)*	235
Microline 321 *Plus (300cps Dot Matrix 15")*	539.	**Video Technology**	
Panasonic		Laser 190A *(Imagewriter Compatible)*	239.
KXP-1080i/M2 *(144 cps)* NLQ Mode	195		

ORCA/Pascal Desktop for the IIgs by The ByteWorks, Inc.

ORCA/Pascal Desktop is the programming package that takes full advantage of the desktop environment, offering beginners an introduction to Pascal, but supporting all the features a professional programmer needs. The development environment features pull down menus, mouse-based and keystroke commands, multiple windows and the ability to run programs without leaving the environment. You'll have a desktop debugger at your fingertips for troubleshooting, and the package comes with a full set of source code libraries and a thorough text that reveals all of the power of *ORCA/Pascal Desktop*.

ORCA/Pascal Desktop for the IIgs ..... **34.**

Business Software

Activision		**Milliken** Medley *(IIgs)*	126.
List Plus or Writer's Choice Elite	65.	**Monogram**	
Addison-Wesley		Dollars and Sense *(IIe, IIe or IIc)*	72.
Wordbench *(IIe & IIgs)* *Special*	99	**Multisoft** DoReMe	55.
Beagle Brothers		**Nolo Press** Will Maker *(Version 2.0)*	39.
Timeout Graph	55.	**Peachtree** Back To Basics	
Timeout SuperFonts *Special*	45	Accounting System. *GL/AR/AP*	129
Timeout QuickSpell	45.	**Pinpoint Publishing** Graphics Edge	55.
Timeout UltraMacros or SpreadTools	37.	Pinpoint IIGs Starter Kit	85
Timeout SideSpread, FileMaster, or DeskTools	32.	Pinpoint Speller/Document Checker Combo	61.
Timeout Thesaurus, DeskTools II or PowerPack	32.	Pinpoint	50.
GS Font Editor or Program Writer	32.	Pinpoint Spelling Checker or Document Checker	42.
Timeout MacroTools or MacroTools II	19	Key Player	30
BPI Systems		ProFILER 3.0	74.
(Accounting Systems for the IIe, IIc & IIGs)		**Roger Wagner Publishing**	
BPI General Accounting ProDos	135.	Mouse Write *(IIe, IIc, IIGs)*	84.
BPI AR/AP or Inventory ProDos *(ea.)*	135	**Sensible Software**	
BPI Payroll ProDos	135.	Sensible Grammar ProDos *(3.5" & 5.25")*	59.
Broderbund		Sensible Speller ProDos w/3.5" & 5.25"	69.
On Balance	39.	**Seven Hills Software** Graphicwriter *(IIGs)*	85
Bank Street Writer *Plus*	50	**Simon & Schuster**	
Claris		Webster's Spelling Checker *(ProDos)*	41.
Apple Works *(IIe or IIGs)*	215	**Software Publishing**	
Multiscribe 3.0 w/Speller *(128K IIe or IIc)*	65	*All Programs for IIe with 128K or IIc*	
Multiscribe IIGs 3.0	75	PFS Workmates *(File/Report/Plan/Write)*	119.
Dac Software		**Softsync**	
Dac-Easy Accounting	65.	Personal Newsletter with Clip Art	39
Datapak		**Stone Edge** DB Master v5	145.
Notes 'N Files *(IIGs)*	74.	DB Master Professional *(IIGs)*	195.
Garde Footing To Finish	55	**Third Wave Technology**	
Intuit Quicken *Special*	34	Magna Charta	41.
Manzanita *BusinessWorks*		Print-Quick	34.
System Manager *(IIe & IIGs) (Required)*	69.	Print Quick Font Disk 1 or 2	15
GL/AR AP/ or Inventory Control *(IIe & IIGs)*	139	**Timeworks** Art Portfolio 4 in 1	75.
Payroll Module *(IIe & IIGs)*	139	Publish-It	69.
BusinessWorks Bundle IIe & IIGs *(Sys. Manager, G/L, A/P, A/R, Inventory)*	299.	People, Places and Things *(IIe & IIGs)*, Design Ideas *(IIe & IIGs)*, Symbols and Slogans *(IIe & IIGs)*, Education Graphics *(IIe & IIGs)*, Font Pack 1 or 2 *(IIe & IIGs)*	27.
MECA		**Word Perfect Corporation**	
Managing Your Money 3.0 *(IIe, IIc, IIGs)*	95	WordPerfect V1.1 w/Speller *(IIe & IIc)*	99.
Mece Calendar Crafter School *(IIGs)*	59.	WordPerfect *(IIGs)*	99.

SCIENCE BY PHILIP ROBINSON

Two programs for stargazers

SKY LAB AND SKY TRAVEL

Sky Lab and Sky Travel are related programs with different goals.

Sky Lab is a strictly educational program that hopes to explain to students in grades 7–9 how the Earth and planets move around the sun. It works from a simple map of the solar system and the zodiacal constellations, illustrating graphically how the revolution and rotation of the earth affect what appears in the night sky. Students can see a "backyard" view of the sky from Earth and a "space view" of the solar system from above the plane of the ecliptic (the plane in which the planets revolve). Along the way are tutorials, experimental opportunities, and quizzes.

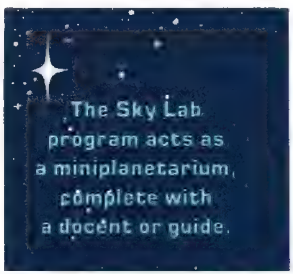
Sky Travel is essentially a graphic, computerized ephemeris to the stars and planets. Give it a location on Earth, a date, and a time, and Sky Travel will show you what will appear or has appeared in the sky. There are no quizzes or on-screen tutorials in Sky Travel, but then this package is not a tool for school. Sky Travel is appropriate for anyone with an interest in astronomy, from the mildly curious to professionals who want a quick glance at a future eclipse.

Sky Lab

Sky Lab is a basic astronomy lesson in four progressive modules: The Rotating Earth, The Revolving Earth, The Revolving Planets, and Halley's Comet. The middle two modules are further divided into The Earth's Orbit/Rotation and Revolution, and Superior Planets: Mars/Inferior Planets: Venus.

Each module begins with an on-screen tutorial that explains the basic facts about the subject, using short blocks of text atop a graphic display. They include a few questions that require simple arrow-key choices, along with a little bit of thinking. The tutorial centers on how the movement of the Earth, planets, or Halley's comet is reflected in the position of planets and constellations in the sky.

After you work through the tutorial, you can experiment with the



sky in a "discovery activity." Here you can move the relevant heavenly bodies and then observe the resulting space view (looking down on the plane of the ecliptic) or backyard view (looking west, south, or east from 40 degrees north latitude). Then comes a quiz of five questions that has you rotate or revolve the Earth to the proper position for a certain view of the sky (see figures 1 and 2).

Moving from one module to another, or from one stage of a module to the next, is a simple matter of choosing an item on a numbered menu. A teachers' keystroke option that isn't listed on the main menu lets you turn the saving of quiz results on or off and lets you view or delete those results. You can store the scores of as many as 50 students, but unfortunately the deletion option allows deletion only of all results at once instead of by student's name.

The documentation that comes with Sky Lab in a loose-leaf binder is not a detailed program reference, but you probably won't need one with a program this simple. Instead it is a "support" manual that explains the learning objectives of each module, the reading level for the on-screen text (seventh grade in each case), and the suggested grade level (7–9) and provides a quick description of the module. It also suggests classroom activities to accompany each module, and includes the diagrams and student-handout master copies you'll need in order to do those activities.

A typical activity involves cutting out paper strips that can represent stars and then placing those strips on a table in positions analogous to the stars' distance from each other. Viewing the strips from various places can help demonstrate how they can look like a constellation or group from a distance, even though they aren't necessarily physically close to each other. The 55-page manual ends with a section called "Everything You Need to Know About the Solar System" that summarizes the basic facts and characteristics of the planets and Halley's comet. (No mention of the asteroids, though.)

I have to admit that although I've been a sky watcher for years, the ability to flip back and forth from the backyard view to the space view firmed my grasp of our position in the solar system. It's too bad I'm not reviewing this product for you in the year before Halley's arrival, because the program points out where the comet was in the sky on what dates but doesn't have any other "soon coming to a sky near you" comets to talk about. The

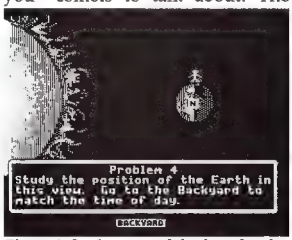


Figure 1: Students match backyard and space views in Sky Lab to demonstrate comprehension of the Earth's rotation.

Midnight
December
Your answer is correct. The constellation Leo is just above the eastern horizon. Select Space View to get the next question.
SOUTH WEST SPACE VIEW

Figure 2: Sky Lab teaches planetary revolution by displaying zodiac constellations in the backyard sky view.

price of Sky Lab is a bit steep for individuals—you'll be finished with the tutorials in just a few hours—but could well be worth it for a science classroom. Sky Lab acts as a miniplanetarium, complete with a docent or guide.

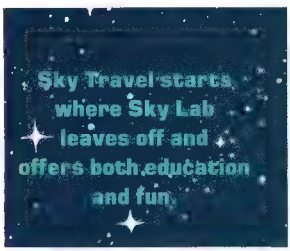
Sky Travel

You won't finish with Sky Travel in a few hours. This program is not simply a tutorial or lesson: It's a dynamic reference tool that goes far beyond the simple miniplanetarium abilities of Sky Lab. Where Sky Lab displays a dozen constellations, Mars and Venus, the sun, and Halley's comet, Sky Travel can put up 1,200 stars; 88 constellations (that's all of them), with the lines drawn in for the major ones; the sun; the moon (with phases); a bunch of deep-sky objects (nebulae, galaxies, and the like); and good old Halley's comet.

The first choice you must make in Sky Travel is your location. Using a Mercator-style map display of the world, you get to position the cursor on a viewing place (see figure 3). You can shoot for a close approximation on the map or watch the longitude and latitude numbers to get it exact. The position of constellations, stars, and everything else in the sky depends on your location. Most hand-held planispheres (the circular star maps amateurs use to identify constellations) are molded for a particular latitude—such as 40 degrees north. That's the tack Sky Lab takes. Sky Travel, on the other hand, lets you see how the sky would change if you moved north or south or even flew close to the South or North Poles (unfortunately, it doesn't actually let you reach the poles).

Next you set the date and time. The first one to try is a late-night hour for the day you're actually living. Might as well see what things look like now, right? But you'll quickly see the fun in checking other times too. The manual—which could double as a supplementary textbook for an astronomy class—includes a dozen different examples of famous eclipses, going back hundreds and even thousands of years.

Set the date and time for a particular January night in 1591 and see an occultation of Jupiter and Mars just as Kepler saw it—it helped him prove that Mars was closer to the Earth than was Jupiter. Don't forget the future! Move forward to 1992 and see where that year's solar eclipse will take place. You'll have to wade your way out into the mid-Atlantic. But why not? This simulation lets you figure out just



where to have your charter jet fly in '92 for the best viewing. Why not check out the sky back in 1985–86 when Halley's flew by? Sky Travel shows it brushing through those years. No matter which view you choose, you can print it out along with official Right Ascension and Declination grid lines.

While you're viewing, you can choose whether to see the artificial lines that help identify constellations, whether to have planets identified by graphic symbols instead of dots, whether to show the names of stars in the sky, whether to show deep-sky objects, and so on. You choose the viewing angle—using a smaller angle is essentially the same as looking through a telescope (everything looks bigger)—and what part of the sky to see. If you look down—I love this touch—you can see right through the solid Earth. That is, Sky Travel shows you what stars and planets are below the horizon so you can see objects that are about to rise or have just set. In fact, look down far enough, and you'll see a pair of feet at the edge of the screen.

As you view the sky, you can use an Inform command to display the name and a brief description of any important object underneath the cursor (see figure 4), and you can use the Find command to have the computer center the view on the moon, sun, particular planet, or constellation. Finally, you can add motion to the sky. A clock can automatically update the changing view—including the relative motion of the moon, sun, and planets—at any rate from 0 to plus or minus 64 times. I found even the high speed to be slow while trying to watch ancient sunsets, however. For example, they take place only every 42 seconds at 4× and every 5.3 seconds at 64×.

The manual contains some important reference information such as latitude and longitude of major cities, a short list of special astronomical events, a glossary, and a lengthy "extra reading" bibliography. It also has a rundown on the program's commands, as well as a series of fascinating examples you can try and some basics on space exploration and astronomy.

Sky Travel includes such sophisticated options as conversion between Julian and Gregorian Calendars (for ancient views) and a Tracking function that keeps the cursor on a planet while you jot down progressive Right Ascension and Declination values for later viewing in the real sky.

I wish the program offered a few more comets, and I wish the Tracking mode would let you print a single chart that contained successive positions of a single object. I found

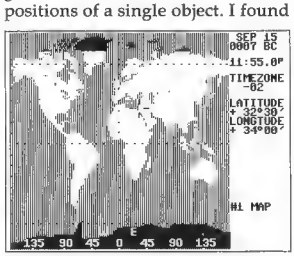


Figure 3: Sky Travel lets you set viewing location in map mode and specify date to see historic astrological events such as the Star of Bethlehem.

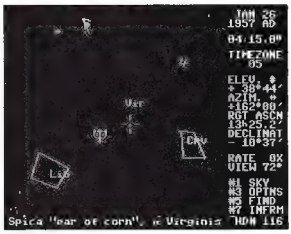


Figure 4: You position the cursor on any heavenly object in Sky Travel for identification and information.

such charts vital in my own search for Halley's back in 1986. I also had some trouble making one of the examples work. Although Sky Travel does not take into account the real motion of stars against the distant background, it is supposed to figure the change in the astronomical North Pole that occurs because of the Earth's precession. That is, the pole star changes over periods of several thousand years, and Sky Travel is supposed to show that change—so you can see that Polaris wasn't the pole star when the pyramids were built, for instance. The missing real motion isn't a big deal, though: Few stars are close enough to Earth to show any perceptible motion except over very long periods. The technical-support staff at Microillusions was quick to answer my question and try to find the problem.

Sky Lab is educational from start to finish. Sky Travel starts where Sky Lab leaves off and offers both education and fun. It could even be useful for advanced amateur or professional astronomers who wanted a dynamic planisphere for scheduling a night's viewing. For zooming about in time and space, checking out Huygens' observations, or just zeroing in on a globular cluster, Sky Travel will remain useful for a long time. Too bad there's no Apple II laptop with a red-light screen for taking Sky Travel into the backyard or onto a mountaintop to be your sky map.✚

Phillip Robinson has written several books and numerous articles about personal computers. His father designed satellites, he built his own 4.25-inch reflector telescope as a child, and he patiently waited 19 years for Halley's comet to come by.

V I T A L

S T A T I S T I C S

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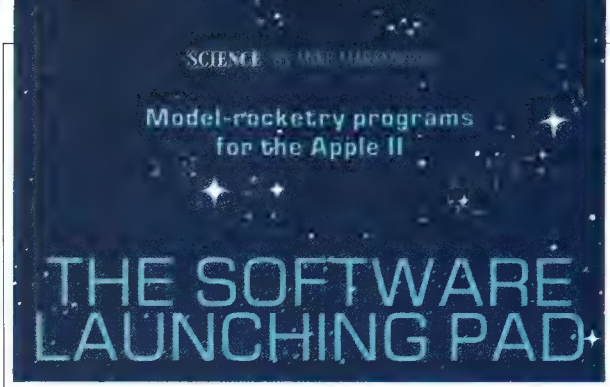


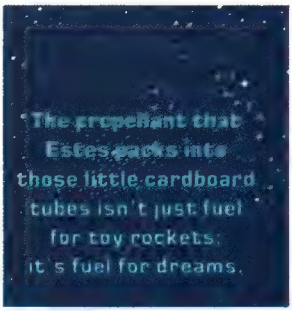
For many educators, the idea of model rocketry arouses fears of liability suits and students with missing digits. Some kids have a primal need to build pyrotechnical devices, though. The question is whether they can do it safely, in the context of organized model rocketry, or recklessly, behind the garage with unstable homemade explosives.

Interest in model rocketry in this country peaked in the early 1970s, but Estes Industries of Penrose, Colorado, continues to manufacture a line of small, inexpensive solid-rocket engines and other components for hobbyists. The company proudly claims more than 300 million safe launches. To help promote these products, Estes has published a remarkable series of educational-software packages in the past two years.

In Search of Space: Introduction to Model Rocketry, by Bob Cannon and Mike Dorffler, is a series of colorful illustrated tutorials covering the flight profile of a model rocket, its parts, types of engines, and the detailed safety code jointly developed by the National Association of Rocketry and the Hobby Industry of America. If you can pass a test on the safety code, you get to see more advanced material.

Flight: Aerodynamics of Model Rockets fills both sides of two 5¼-inch disks with these tutorials: Forces on Flying Objects, Aerodynamics, Drag, Center of Gravity/Center of Pressure, and Stability. Some difficult engineering concepts are presented in an exceptionally lucid manner. From a main menu, you select topics, each consisting of a series of frames combining a hi-res picture with 4 lines of 40-column text. The artwork is attractive and professional, and the text is clearly worded, at a junior-high reading level. Most technical terms are explained as soon as they're introduced.

Physics of Model Rocketry covers the concepts of action/reaction, inertia, momentum, acceleration,



staging, satellites, and g-forces. The section on satellites provides descriptions of circular, elliptical, and geosynchronous orbits.

These packages are suitable for a science curriculum in approximately grades 6 through 12. Since even the best-financed model-rocket club cannot be launching projectiles all the time, the software provides an educational and highly motivating way to fill the time between countdowns.

At several points, however, the programs seem to lapse into advertising for the Estes line of model-rocket engines and accessories. It makes me a little uneasy to see educational and commercial messages mixed together so closely, despite the technical quality of the content.

All of these programs are enhanced by colorful animations (developed with Baudville's Take 1 and Blazing Paddles) and provide multiple-choice questions as learning checks. The programs use Tom Weishaar's fast ProntoDOS operating system. They run smoothly on the IIGS, even at the Fast system setting. Several of the programs don't run properly on my Laser 128, however, for reasons I haven't been able to diagnose.

Documentation is a simple leaflet with a list of topics and instructions for loading the program. Estes also provides teachers' guides for each of the packages, as well as a series of colorful posters illustrating model-rocketry hardware and aerodynamic concepts.

For more advanced hobbyists, there are two disks of Applesoft BASIC programs. With Aerotrek Model Rocket Altitude Prediction Toolkit, you enter a few numbers describing your design in order to calculate the theoretical maximum height your rocket can attain. The program can handle single-stage, two-stage, three-stage, and cluster configurations. There is even a program to predict altitudes for model rockets launched from the surface of the moon, where performance is spectacular, thanks to the low gravity and lack of air resistance.

Astrocad: Performance Analysis for Model Rockets, is a detailed set of analytical tools, including Apogee Determination, Stability Determination, Dynamic Stability, Drag Prediction, Drag Estimation, Per-

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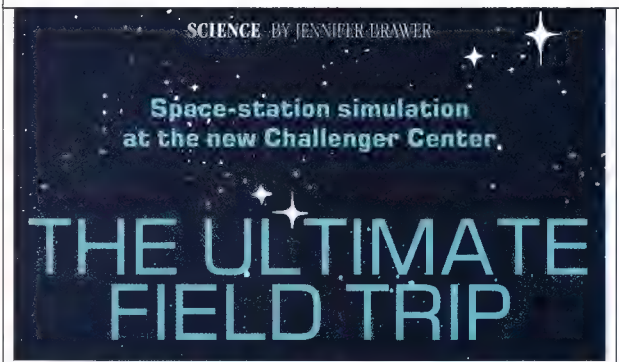
formance Prediction, Optimum Weight, Flight Simulation, and Elliptical Fin Design. A well-illustrated 20-page manual documents the program's many features.

Amateur model rocketry has a proud lineage. Many of the German rocket scientists—great builders such as Werner von Braun and great dreamers such as Willi Ley—started out as members of a model-rocket club they grandly named The Society for Space Travel. Thirty years later, they made it happen. Several NASA astronauts trace their initial interest in space to experiences they had with model rocketry. Thousands of the engineers and technicians who make spaceflight possible have had similar experiences.

Until an antigravity drive comes along, rocket engines are the only means of spaceflight, and model rocketry can be a significant educational activity. The propellant that Estes packs into those little cardboard tubes isn't just fuel for toy rockets; it's fuel for dreams. It's certainly appropriate for Apple II software to become part of those flights of fancy. ✚

Mike Markowitz is a computer engineer and has been writing about Apple II computing since 1983.



How would you like to leave Earth this spring and end up on Mars in the year 2061? Right now, you have to depart from the Houston Museum of Natural Science, but in the near future, missions may be leaving from your neighborhood.

This amazing excursion is only one of a variety of interplanetary adventures available at the new Challenger Center, housed in the Houston Museum of Natural Science. Conceived and implemented by the families of the crew members who perished in the Challenger Space Shuttle disaster, the Challenger Center is a network of educational sites offering students and teachers the opportunity to learn about space through participation in simulated missions.

Apple-Powered Space Station

Currently, missions take place inside the Space 2061 Simulator, a mock space station "in orbit" between Earth and Mars. As in a real launch, the crews work in teams that are responsible for major portions of flight operations. Consequently, the experience requires extensive group problem solving.

The adventure, loaded with intellectual challenges, is definitely not for astronauts who just want to go along for the ride. You work hard. The robotics team, life-support engineers, and probe-construction team are responsible for mission operations. They handle dangerous substances, monitor the ecology of the space station, and build and deploy probes to investigate space. If you're assigned to the medical or biosphere team, you'll be responsible for investigating and monitoring crew health or operating robot farmers who cultivate crops in the space station's greenhouses.

Let's not forget Mission Control. A staff of 10–18 controllers is necessary to run the simulated flights. For each team on the flight there is a controller team at Mission Control providing all the information it needs for a successful journey. Excellent communication skills are a must for understanding the complex flow of information between Mission Control and the space station and for precise execution of the mission tasks.

Mission Control and the simulator are powered by Apple IIGS and Macintosh II computers donated by Apple Computer. The Mac II is the basic research-information station for the Mission Control teams. Controllers use it to investigate large databases and pass helpful information along to the flight crews via a fiber-optic cable. Visual information for creating the space environment is kept on a IIGS with a hard-disk drive. For example, a IIGS projects the star fields surrounding the space station. IIGS computers also monitor mission progress, deploy probes, transmit probe data, and collect physiological data from the flight and space-station crews.

Model Math/Science Curriculum

This program is more than the computer technology that enables the simulated space travel; it also provides an exciting and unusual context for learning science and math. The approach requires cooperative and creative problem solving, and the technology gives students opportunities to challenge the predictable and explore the unknown. In addition, this novel delivery of a math and science curriculum may make the subject areas more palatable to students who traditionally shy away from these disciplines. Now that's education!

Apple Computer and the Challenger Project design team are justifiably proud of their combined efforts to build a model educational program. The program itself endorses a philosophy of lifelong learning and will ultimately make the simulation and training experiences available to adults, too. With plans to implement Challenger Center programs in all 50 states by the year 1992, it won't be long before a trip to Mars will be a great way to spend the weekend! ✚

SCIENCE BY M.A. CLARKSON

Space Shuttle simulator relies on three Apple II computers.

MISSION CONTROL

The Falcon Space Shuttle simulator rears back on its single massive hydraulic piston. Inside, the four astronauts-to-be are pressed back into their couches, watching the launch through the forward windows. The cockpit vibrates with the force of takeoff. In the two forward seats, the pilot and copilot "fly" the simulator, monitor mission status, and communicate with the Capsule Communications officer (CapCom)—the fifth member of their team, who sits outside at the Mission Control console. They are on their way to orbit, where they will launch a satellite before returning to Earth.

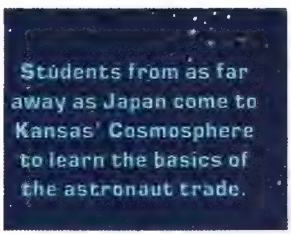
The Falcon is an 85% scale mockup of the NASA Space Shuttle cockpit. It has "flown" more than 150 missions in almost five years of service.

The Falcon flight is the climax of the week-long Future Astronaut Training Program at the Kansas Cosmosphere and Space Center in Hutchinson, Kansas. Seventh-, eighth-, and ninth-grade students from as far away as Japan come to the Cosmosphere to learn the basics of the astronaut trade. In the course of training, they endure a stress test strapped to the inside of a rotating drum and fly a refurbished World War Two Link Trainer; a Shuttle EVA backpack; and, finally, their own Shuttle mission aboard the Falcon.

All of the apparatus was built by the staff of the Cosmosphere's Space Works, the world's leading experts in the restoration and reproduction of American space artifacts. Their handiwork has appeared in dozens of museums, including the Smithsonian, and on the TV miniseries *Space*. The Cosmosphere houses the Midwest's largest space museum, and the technical staff has a lot of experience interfacing Apple II computers to the various interactive exhibits. That experience made the Apple II the obvious choice as the computer to control the Falcon and other simulators of the Future Astronaut Training Program.

According to Ron Bloss, Cosmosphere Technical Coordinator and one of Falcon's creators, "It's no secret that the Apple is relatively easy to interface to." Not too easy in this case; with one exception, all of the interface boards were custom-built by the Space Works to meet their specialized needs.

Control of the Falcon is divided among three systems, each with its own computer: the hydraulics, the video, and the on-board computer.



The hydraulic system, which an Apple II Plus operates, regulates the motion and orientation of the Falcon according to the phase of the mission. On takeoff, for example, the simulator rises very rapidly to simulate the 3-g acceleration. The piston delivers the vibration of the engines.

An Apple IIe drives the Pioneer laserdisc player that shows NASA film on monitors behind the simulator's windows. Through the forward windows, the students watch takeoff and landing videos from authentic Space Shuttle flights. Through the aft window, the mission and payload specialists watch the satellite they have launched as it spins off into space.

The third Apple, also a IIe, runs the on-board computer system, providing checklists, the countdown clock, and special programs for such tasks as navigation and satellite launching.

During a flight, the various computers monitor every phase of the mission. If the controls aren't set right, the satellite won't launch, and the Orbital Maneuvering System won't fire. "If they don't get it right," says Bloss, "they don't proceed." The people at the Mission Control console, two instructors and the CapCom, watch the video being displayed in the simulator and monitor flight status and control settings.

Remarkably, it's all orchestrated by about a dozen pages of BASIC—compiled for speed—with an occasional excursion into assembler. The downside of that ease of control is lack of flexibility. The Falcon was built to fly only one mission. Much of it is hard-wired, meaning that any changes require a major overhaul. That's why the code is so small; it has to handle little deviation. Each mission is just like the last.

All that will be changing with the next generation, the Falcon X2, currently under construction at the Cosmosphere's Space Works for delivery to Japan's Yokohama Exotic Showcase '89. The X2 will be almost completely under software control, able to simulate an endless variety of missions.

The Space Works plans for the original Falcon to be overhauled soon and brought up to the capabilities of the X2 model. In one form or another, it will continue to send teenage astronauts into orbit and bring them down again.

"It's great to see those kids crawl out after one of their missions," says Bloss. "They're in awe." ✚

M.A. Clarkson is a free-lance writer who lives in Wichita, Kansas. He has been a computer consultant and analyst for eight years.

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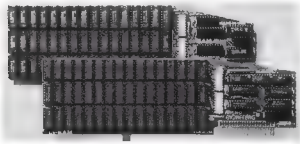

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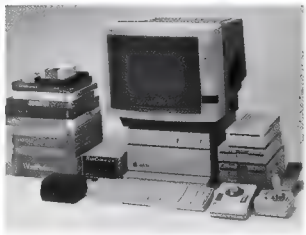

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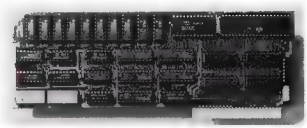

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Wordbench—a program that can help you structure your writing

Life in the Writing Environment

A decade into the personal-computer era, the marketplace has become increasingly saturated with word-processing programs. As these programs have proliferated, differentiating among them has become harder and harder. All of them do basically the same things, in basically the same way. None of them, however, addresses the underlying fact that many people have no confidence in their writing skills and just plain hate to write.

Wordbench, a new program developed in part by the Bank Street College of Education—the same people who devised the fabulously successful Bank Street Writer—is an ambitious attempt to deal with both of these issues. For better or for worse, it is unlike most other word-processing programs on the market. And it may prove a godsend for those scriptophobes who would just as soon face a firing squad as a keyboard.

Wordbench isn't really just a word-processing program—it's a "writing environment" that attempts to structure what is perhaps the most unstructured of activities. In practice, it is something like having an English teacher hovering at your shoulder, helping you organize your thoughts, answering spelling and usage questions for you, getting you past writer's block, and encouraging you to keep going. On the other hand, teachers can be maddening, forcing you to do things their way for no apparent reason and generally making a nuisance of themselves when you'd just as soon be left alone to work in peace.

The integrated programs that comprise Wordbench include Outliner, which helps organize your writing projects (see figure 1); Notetaker, a stack of electronic 3 × 5 cards for jotting down facts (see figure 2); Writer, a word-processing program with a built-in spelling checker and thesaurus (see figure 3); and Brainstormer, a unique set of programs to help you break through that curse of all scribblers, writer's block. The programs are all interlinked. Thus, for instance, you can merge an outline and notes in Writer to form a first draft and then import into Writer some text you've created with a Brainstormer device to clean it up and make it a part of the document.

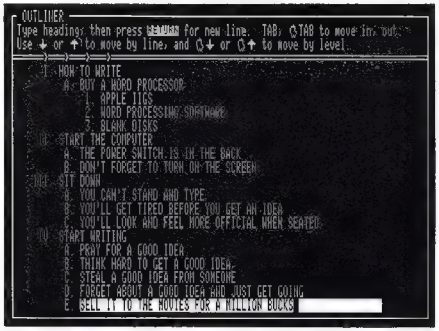
Wordbench may prove a godsend for those scriptophobes who'd just as soon face a firing squad as a keyboard.

The Wordbench package contains four double-sided "flippy" 5¼-inch disks and two 3.5-inch disks; the smaller ones are vastly easier to use. Wordbench is not copy-protected and can be easily installed on a hard disk, where it works swiftly and smoothly. The package also includes three slick books—*User's Guide*, *Reference Manual*, and *Tutorial*—as well as a reference card.

The program is a strange mix of user-friendliness and user-hostility. On the friendly side, it is extensively menu-driven. Even without the useful manuals, you can probably be using Wordbench intuitively in a matter of a few minutes. The word processor is what-you-see-is-what-you-get; italics and boldface are visible on-screen. In addition, Wordbench offers extensive on-line help.

At the same time, however, the program insists that you do things its way. You get no options for character- and background-color display; on a IIGS, the program overrides all the user-set colors and presents you with a black screen and white letters. Presumably in the interest of being as similar as possible to the IBM PC version, it

ILLUSTRATION BY CARY HENRIE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Type heading; then press RETURN for new line. TAB; ⌘TAB to move in, out.
Use ↓ or ↑ to move by line, and ⌘↓ or ⌘↑ to move by level.
I. HOW TO WRITE
A. BUY A WORD PROCESSOR
1. APPLE IIGS
2. WORD PROCESSING SOFTWARE
3. BLANK DISKS
II. START THE COMPUTER
A. THE POWER SWITCH IS ON THE BACK.
B. DON'T FORGET TO TURN ON THE SCREEN!
III. SIT DOWN
A. YOU CAN'T STAND AND TYPE.
B. YOU'LL GET TIRED BEFORE YOU GET AN IDEA.
C. YOU'LL LOOK AND FEEL MORE OFFICIAL WHEN SEATED.
IV. START WRITING
A. PRAY FOR A GOOD IDEA
B. THINK HARD TO GET A GOOD IDEA.
C. STEAL A GOOD IDEA FROM SOMEONE
D. FORGET ABOUT A GOOD IDEA AND JUST GET GOING
E. SELL IT TO THE MOVIES FOR A MILLION BUCKS

Figure 1: Automatic formatting in Wordbench's Outliner provides an organized context in which to develop ideas.

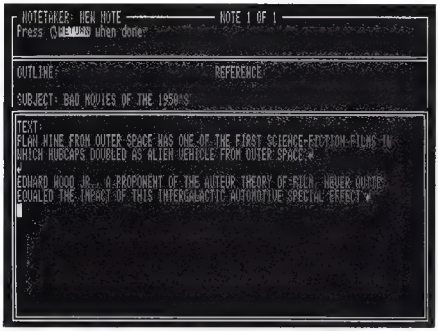
NOTETAKER: NEW NOTE
NOTE 1 OF 1
Press ⌘RETURN when done
OUTLINE:
REFERENCE
SUBJECT: BAD MOVIES OF THE 1950'S
TEXT:
PLAN NINE FROM OUTER SPACE WAS ONE OF THE FIRST SCIENCE-FICTION FILMS IN
WHICH HUBCAPS DOUBLED AS ALIEN VEHICLE FROM OUTER SPACE.
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Figure 2: The Notetaker tool creates a notecard-like setting in which to gather and organize facts.

stubbornly refuses to use the Apple standard Macintosh-like interface and doesn't work with a mouse. Activating the Wordbench pull-down menus requires a sometimes annoying sequence of Escape, arrow-key, and Return keystrokes. It also rejects the other de facto Apple II "standard," the AppleWorks shortcut commands. Saving text, ⌘-S in AppleWorks, is ⌘-U here. And finally, WYSIWYG may make the word processor more convenient, but it also slows things down. Wordbench's speed is adequate but doesn't approach that of AppleWorks.

Using Wordbench

Boot the program, and you find yourself in a main menu offering the choice of Outliner, Notetaker, Writer, Add-In Manager (where the Brainstormer resides), Folder Manager, or Print Manager (see figure 4). The latter two take care of some vital chores. The "folder" is Wordbench's basic organizational unit. One folder might contain, for instance, the outline of a school paper, notes, references, and a draft of the paper itself. Print Manager, as the name implies, controls the parameters and drivers for printing your documents.

Most modern word-processing programs treat writing and editing as a single function. Wordbench's Writer, however, maintains a distinction between the two. You access major editing functions—copying or deleting a block of text, for example—by pressing Escape from within the Write mode, using the arrow key to move to the Edit option, activating the menu, and choosing a function—a process that can be extremely cumbersome. Luckily, however, the program also lets you highlight a block of text by using ⌘-M while you're still in the Write mode, which causes an editing window to pop up. Although the *Users' Guide* places primary emphasis on using the "edit" process, you'll find it vastly simpler in actual practice to use the latter method.

One of Wordbench's strong suits is its macro capability. Macros—"shortcuts" in Wordbench parlance—let you "record" a series of keystrokes and then play them back by typing a ⌘ key combination (Option on the IIGS). Besides allowing up to 36 shortcuts, Wordbench also lets you create a start-up macro, for instance, to always open a specific folder and go into the Writer or the Notetaker. Thus, you can customize the program to meet your own needs.

Overcoming Writer's Block

Perhaps Wordbench's most innovative feature is the Brainstormer, an "add-in" built into the program. (Addison-Wesley promises more such add-ins in the future, either from itself or from third-party developers.) Brainstormer offers several different options to help dissolve writer's block.

One is "freewriting," in which you specify a time period—say five minutes—in which you are to write rapidly and continuously. You aren't allowed to go back to correct spelling or punctuation, and if you stop for more than a few seconds, a KEEP WRITING message flashes on the screen for encouragement. The goal is to get your thoughts down; you can go back and clean things up later.

In "invisible writing," the idea is to prevent you from becoming so caught up in what you've already written that you aren't able to proceed. What you type appears on the screen solely as a series of asterisks; only at your command do the actual letters appear on the screen (see figure 5).

A third option, "nutshelling," gives you a tightly limited space and requires you to state your main theme as succinctly as possible.

Finally, "goal setting" requires you to state your subject, point of view, intended audience, and the like, in hopes of focusing your writing.

Some Caveats

Version 1.0 of Wordbench has some bugs and problems. On one occasion, the program froze; the cursor continued blinking, but Wordbench wouldn't accept any input from the keyboard, requiring a reboot, after which the program ran normally.

The spelling checker is officially 60,000 words but sometimes seems more limited—when, for instance, it fails to recognize *Dr.* and *doesn't*. (You can have the program add unrecognized words and terms to one or more personal dictionaries.)

More troublesome to IIGS users: The presence of a hard disk with GS/OS, the new IIGS operating system, renders the spelling checker useless. Wordbench simply announces that "there is a problem reading this disk." This interference occurs even when the hard

WRITER: BODETT
Write EDIT CHANGE DOCUMENT MERGE ANALYZE SETTINGS
The Sock Conspiracy
I know we've all heard alot about sock behavior and the petisrn habit they have of disappearing in the laundry. Why isn't someone addressing this issue? People, we have a problem here. We're resigning ourselves to this much too easily. You may ask you wife, "Honey, where's my other blue sock?"
"It was lost in the wash," she says.
"Oh, I see."
Home product manufacturers have thus far met with every challenge. Problem stains, dull floors, and dishpan hands are all a thing of the past. Scratchy toilet paper, all but obsolete, can only be found in cheap gas-station rest rooms. They make exhaust vents for smells, thermostats to regulate everything, timers for lights, and central vacuum systems, but they can't keep the laundry from eating your socks. Or can they?

Figure 3: You access Wordbench's conventional cut/paste word-processing functions in the Writer module.

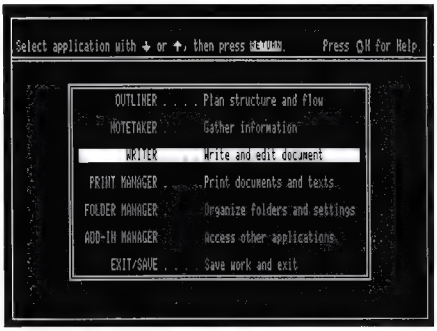
Select application with ↓ or ↑, then press RETURN. Press ⌥H for Help.
OUTLINER . . . . Plan structure and flow
NOTETAKER . . . . Gather information
WRITER . . . . Write and edit document
PRINT MANAGER . . . . Print documents and texts
FOLDER MANAGER . . . . Organize folders and settings
ADD-IN MANAGER . . . . Access other applications
EXIT/SAVE . . . . Save work and exit

Figure 4: All features and modules of Wordbench are available by highlighting options on the main menu.

disk isn't in use and the program and data are being run off floppy disks. Interestingly, the thesaurus is unaffected by the problem.

One other note for hard-disk users: Addison-Wesley admits that version 1.0 has a bug that generates a `Disk full` message when confronted with more than 16Mb of unused storage space. It plans to fix the bug in the next revision.

Technical support, helpful and knowledgeable, is available for the cost of a phone call to Massachusetts. (Westerners need to call early, since support closes at 1:30 P.M., Pacific time.)

Technical support is not a substitute for correcting flaws and mistakes, though. Wordbench's glitches are not exclusive to the program itself, either; the Wordbench *User's Guide* sends you on a wild-goose chase for a drop-down menu called Writer Defaults that, it turns out, does not exist.

In Search of a Niche

At the moment, Wordbench is partially a program without a market niche. Many of its most appealing features are irrelevant to the business market. Creative and professional writers may love its multitude of tools but may also find themselves constrained by its rigid format. Its most likely audience

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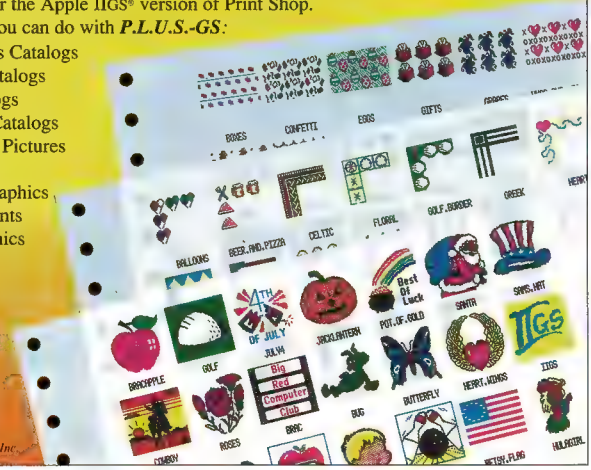

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Figure 5: Designed to overcome writer's block, Invisible Writing replaces letters with on-screen asterisks.

may end up being students, who can make best use of its organizational ability as well as the actual word processor. Others who don't like to write and who feel reassured by having the computer structure their work for them ought to give Wordbench a try as well.

Clearly, Addison-Wesley still has a way to go in making Wordbench all it can be. Just as clearly, this program has enormous potential. Its flaws are principally problems of execution rather than of conception; with the bugs identified and fixed and with a better user interface, Wordbench could prove to be among the most valuable tools in a computer user's software library. ✚

Rich Jaroslovsky is a political editor and columnist in The Wall Street Journal*'s Washington bureau.*

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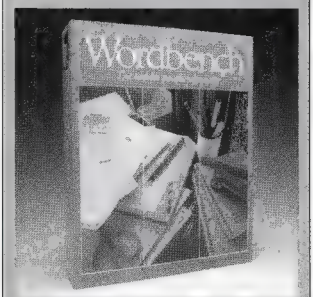

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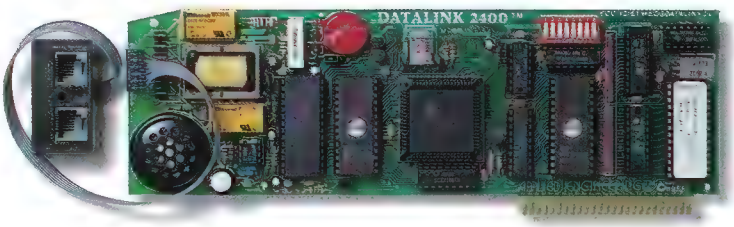

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3 by BEAGLE

Beagle Bros' latest additions to the TimeOut series of AppleWorks enhancements are an on-line thesaurus and two utility disks with two dozen new AppleWorks add-ons between them. The TimeOut PowerPack, DeskTools II, and Thesaurus are all outstanding values, at $49.95 each.

TimeOut PowerPack

Beagle Bros TimeOut PowerPack contains 11 pop-up AppleWorks utilities including Triple Desktop, which provides a commonly requested AppleWorks enhancement that was previously unavailable. Triple Desktop creates two auxiliary desktops that are accessible through Ó-Escape. When your real desktop reaches its maximum of 12 files, you can instantly swap it for one of the other two desktops. You can also move, or swap, individual files between desktops.

People who complain about AppleWorks' over-solicitous error trapping—Are you sure you want to do this?—will love Triple Desktop, but if you don't save your work, you can quit AppleWorks and lose up to 24 files. A small *c* or *n*, for *changed* and *new*, appears after the name of files in the extra desktops to warn you that they haven't been saved, but you have to remember to invoke Ó-Escape to see the list of files.

To go along with Triple Desktop, Beagle also offers Triple Clipboard, which lets you have three independent clipboards at once, instead of erasing the old information each time you add something new. This utility is the only one not compatible with the software modifications to AppleWorks you get with Applied Engineering memory-expansion boards. If you have AE's expanded clipboard, which can handle more than 2,000 lines, you probably won't want to give it up for Triple Clipboard's maximum of 250 lines per clipboard.

PowerPack's File Librarian program automatically reads the contents of disks or subdirectories into an AppleWorks database. File Librarian is similar to earlier programs that came with Beagle Bros' AutoWorks and Super MacroWorks, but it is better, because it works from inside AppleWorks. Like its predecessors, it reads in the approximate file sizes in kilobytes, but it goes further, letting you configure File Librarian to give the file size in blocks—a more accurate size indicator. Either way, unfortunately, the number is expressed in a way (45K or 91B) that defeats the AppleWorks Ó-T command. If the program produced only a numeral, you could compute the amount of space remaining on a disk with a database report.

Also on the PowerPack disk is AWP to TXT, which converts word-processor files into ASCII text faster than AppleWorks does and without making you type pathnames. Once you get used to this accessory, you will also want its opposite number, Text Loader, a wonderful program on the Late Nite Patches disk. It's available directly

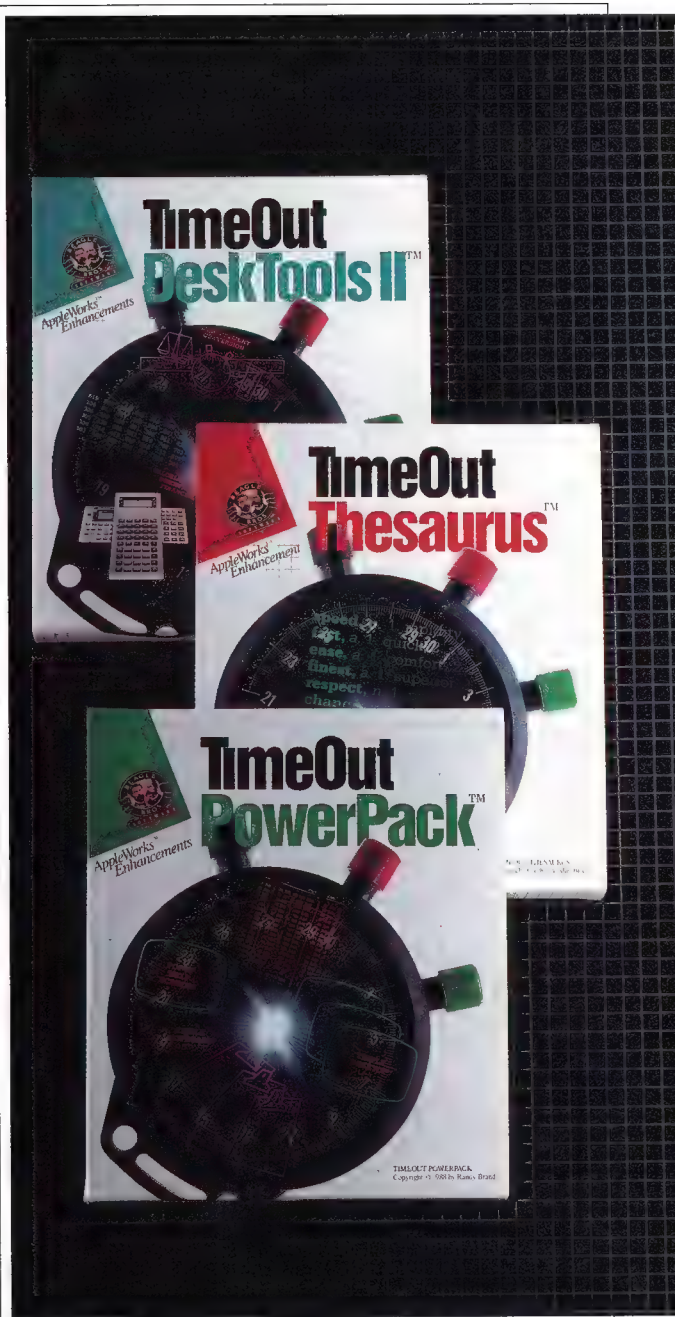
from Beagle Bros programmer Randy Brandt. (Send $20 to JEM Software, P.O. Box 20920, El Cajon, CA 92021.) Used together, PowerPack's AWP to TXT and Text Loader really do take the pain out of pathname typing. They handle text files the way AppleWorks should have handled them in the first place.

The PowerPack Program Selector is for macro fans who don't know where to stop. With it, you can leave AppleWorks and go to another application. Then, when you quit, AppleWorks automatically restarts. There's even a macro for reloading your original desktop that mimics the Resume Works function in Microsoft Works for the Macintosh. Hotshot UltraMacros programmers will appreciate ASCII Values: ASCII, decimal, hex, binary values, and their screen equivalents pop up in the middle of your AppleWorks screen.

Help Screens lets AppleWorks gurus create help screens that are accessible through the TimeOut menu. You could do the same thing with a word-processor file, but Help Screens doesn't use a file on the desktop, and it's always where you can find it easily. Of course, help screens don't have to be about AppleWorks; you can fill them with FAX numbers, driving directions, point spreads, mantras, or anything else to which you need quick access.

Category Search adds some power to the AppleWorks database module, letting you search a category at a time instead of the whole database. It's noticeably faster than unenhanced AppleWorks, and you can use wild cards, a feature not available in AppleWorks. For instance, B??H finds Bush and Both.

Line Sorter brings alphabetizing to the word processor. This utility sorts a range of lines in alphabetical or reverse alphabetical order without first transferring it to the database. Similarly, the Desktop



PHOTOGRAPHY BY CARTER DOW

Sorter organizes your files. The AppleWorks desktop index simply arranges files in the order in which they were added to the desktop, but Desktop Sorter instantly alphabetizes files or, more slowly, puts them in any order you desire.

TimeOut DeskTools II

The Measurements utility on DeskTools II does calculations and pastes the results into word-processing documents. You may say, correctly, that you can do the same thing in the AppleWorks spreadsheet module, but Measurements is easier and can compute some tricky equivalences.

For example, I asked it to figure out how many weeks I will have been alive on my 38th birthday, and it answered 1,982.79. I got 1976 weeks when I did it in the spreadsheet, forgetting that there are actually 52.14, not 52, weeks in a year and that a guy my age has seen more than a week's worth of leap years.

So don't match wits with Measurements—it's right, and you'll love the ability to insert the answer anywhere you left the AppleWorks cursor. Measurements will come in very handy for people who work with nautical miles, troy ounces, decades, centuries, kilometers, milliliters, drams, or any of the other units that made you grind your teeth during eighth-grade math.

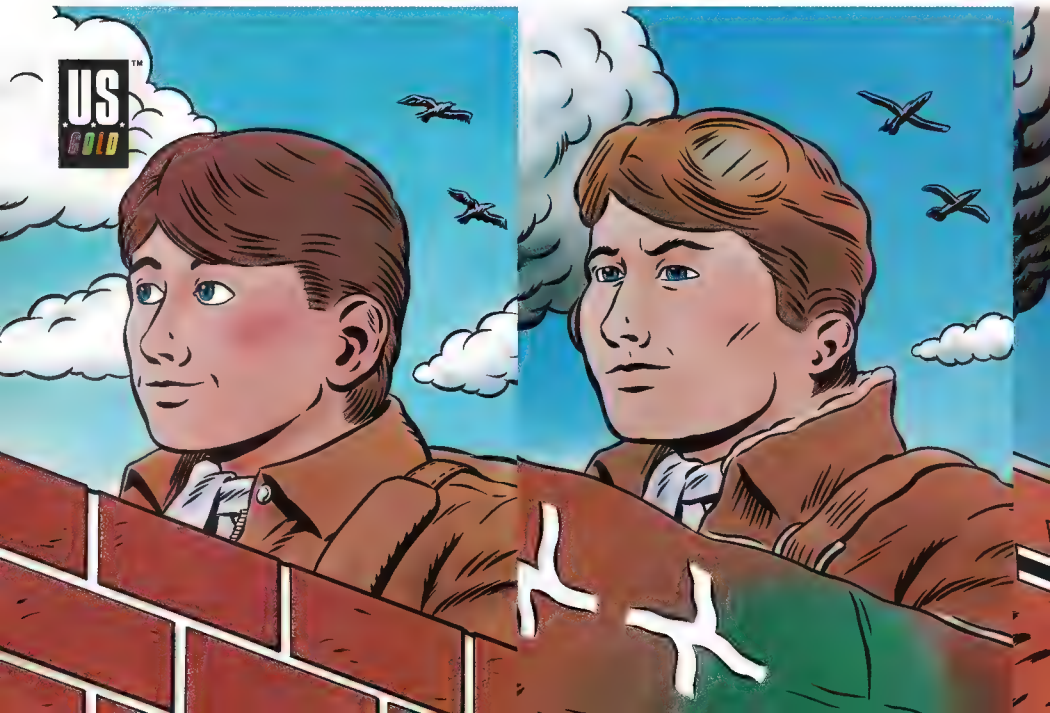
The PowerPack and DeskTools II utilities could have been sold as ten products instead of two.

If you have a ProDOS clock, you can use Stop Watches to time up to five projects. Only the IIGS version tracks seconds, but generally you can use Stop Watches to find out exactly where your time is going. It's ideal for lawyers, accountants, and even PR consultants who bill for their time.

Directree is a needle-in-a-haystack hard-disk utility that quickly finds missing files hidden away in various subdirectories. File Search looks for key words in different files without loading them into memory. Once you've located a file, File Search can load it into the AppleWorks desktop.

DeskTools II also has a killer Calculator Plus. If you're familiar with Pinpoint's slow, awkward four-function calculator, forget it. This one is a big-time reverse-Polish-notation scientific calculator that does trigonometric and logarithmic functions. It's accurate to 16 decimal places and includes financial-math features such as present and future value, loan payments, and variable compounding rates.

Other utilities in DeskTools II are Disk Tester, Clipboard Viewer, Screen Out, Screen Printer, and Printer Manager. Disk Tester checks disks to see if they are readable and displays the amount of space left on a disk in blocks. AppleWorks displays the amount of available disk space in kilobytes, which is less accurate. You can also choose the slower, more thorough read/write test. Clipboard Viewer allows viewing and selective deletion of clipboard information.



Screen Out prevents burn-in by blanking your screen (although not automatically). Unblank it by tapping a key or a 12-character security code. Screen Printer gives you control over your Ć-H printer to print out any portion of the AppleWorks screen.

And finally, Printer Manager significantly increases your control over your printer. It comes preconfigured for an ImageWriter II, but you can customize up to three printers, which you name to correspond to your AppleWorks printer names. Using it, you can send control codes directly to the printer to compress print, change fonts, or do whatever else your printer is capable of doing.

Not all the features in PowerPack and DeskTools II will be equally useful to all users. This comment, however, is like complaining about some of the items at a sumptuous buffet table. Collectively, they are great software values, and the features perform as Beagle advertises.

TimeOut Thesaurus

Thesaurus works, but I question the need for this product category. You can get a good thesaurus for a couple of dollars in paperback or use it free in a library reference room. Beagle's is fast and well executed, but it uses as much memory and disk space as TimeOut QuickSpell does, to less purpose.

Collectively, these are great software values, and the features perform as advertised.

If you want an on-line thesaurus that looks for one of 50,000 synonyms and then pastes it into your text automatically, however, look no further. Beagle has no competition for this product and, frankly, I doubt that anyone else will make one that works as well.

Don't let the exceedingly low prices of these products fool you. The TimeOut Thesaurus compares favorably in speed and ease of use to the one in Fullwrite Professional on the Macintosh, and the PowerPack and DeskTools II utilities could have been sold as ten products instead of two. If you buy any of these new TimeOut AppleWorks enhancements, you will no doubt join Beagle's large and loyal customer base. ✚

Steve High is the owner of a San Jose advertising and public-relations firm and is the coauthor, with Chris Van Buren, of AppleWorks Mastery *(Scott, Foresman, 1988).*

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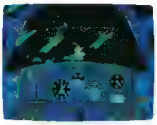

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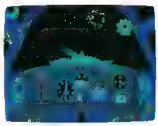

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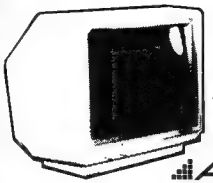

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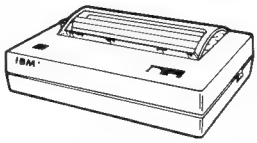

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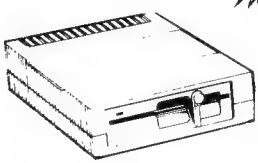

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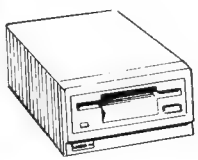

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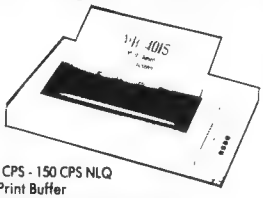
Multi-Head Wide Carriage Printer With High Dot Resolution



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- 8K Print Buffer
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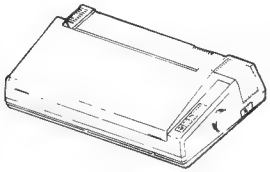

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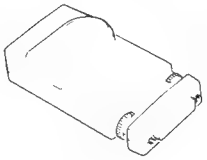

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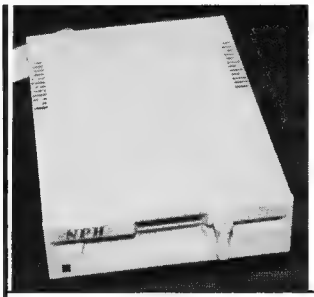
CIRCLE 265 ON READER SERVICE CARD



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CIRCLE 152 ON READER SERVICE CARD

BY MIKE MARKOWITZ

Linking your serial port to parallel printers

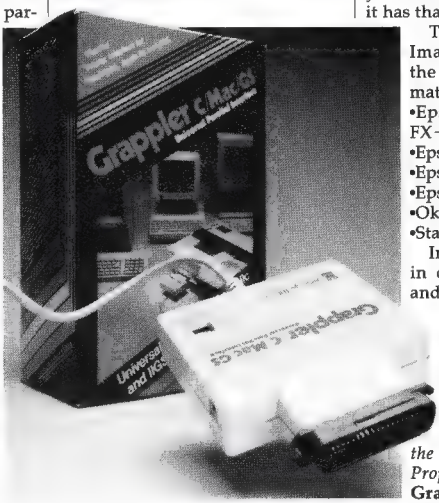
GRAPPLER C/MAC/GS

Apple ImageWriter printers use a serial interface, so Apple builds serial ports into the Apple IIc, IIc Plus, and IIGS and makes the Apple Super Serial card for II Plus and IIe owners. Many other printers use a parallel interface. How can you use a parallel printer when all you have is a serial port? And how can you get your software to perform if it insists you use an ImageWriter?

The Orange Micro Grappler C/Mac/GS, a serial-to-parallel converter that has ImageWriter emulation thrown in for good measure, is one solution. It also works with the Macintosh—that accounts for one-third of the awkward name.

The Grappler C/Mac/GS interface is the latest in Orange Micro's Grappler line. Previous Grappler interfaces were printed circuit boards that plugged into a slot inside the computer. The C/Mac/GS, on the other hand, is a plastic box four inches wide, three inches high, and one inch thick. A Centronics parallel connector protrudes from the top edge and attaches to your printer. A five-foot cable terminates in a circular five-pin serial connector that plugs into the back of your IIc. For the IIGS and IIc Plus, another short length of cable adds an adapter for the smaller eight-pin printer port.

The circuitry that converts serial data into parallel data inside the Grappler C/Mac/GS draws its power from a 9-volt DC transformer that plugs into a wall outlet or power strip. If the Grappler will be out of use for an extended period, it must be unplugged, or it may overheat and fail.



You configure the Grappler C/Mac/GS by using a block of four recessed DIP switches. One DIP switch toggles between ImageWriter emulation and "parallel mode." In the emulation mode, your software thinks you have an ImageWriter II connected to a serial card in slot 1. The Grappler C/Mac/GS translates the stream of ImageWriter commands into equivalent codes for your parallel printer. In the parallel mode, the Grappler does not translate outgoing printer codes. Instead, your software "sees" a standard parallel interface. So, if your software works with your parallel printer, you can take advantage of features it has that the ImageWriter lacks.

The Grappler provides ImageWriter emulation for the following nine-pin dot-matrix printers:

- Epson FX-80, FX-100, and FX+
- Epson RX
- Epson LX, LQ
- Epson MX
- Okidata Microline 192, 193
- Star Gemini SG, SD, SR, 10X

In addition, it lets you print in color with the Epson EX and JX, the C. Itoh C310XPR (in Epson mode), and the Okidata 292. (*Editor's note: Orange Micro planned to release version 2.0 of the Grappler C/Mac/GS in November 1988. The new release also works with the C. Itoh ProWriter and IBM Proprinter.*)

Grappler Software

The package includes an unprotected 5¼-inch ProDOS disk with 104K of graphics-utility programs and sample files. IIGS and IIc Plus owners who have only 3.5-inch drives will need a friend (or friendly dealer) to copy the files onto a 3.5-inch disk.

The disk contains an automatic routine that installs Grappler GS, a Classic Desk Accessory (CDA), on any IIGS system disk. It lets you "dump" any text screen—with

complete control over format and style—and almost any graphic screen, with such options as inverse print, rotation, and window selection, to the printer. IIc users can get the same functions from included utility programs.

Compatibility

I tested the Grappler C/Mac/GS with an Epson MX-80 printer and an Apple IIGS running a variety of ProDOS 8 and ProDOS 16 software configured to print to an ImageWriter II. AppleWorks 2.0 printed without problems when I used it alone and with Beagle Bros' Time-Out SuperFonts utility. StyleWare's MultiScribe GS, version 3.0, worked fine in normal printing, but the Better Text mode split lines in half horizontally and put four line feeds between the top and bottom halves. StyleWare's TopDraw, an object-oriented graphics package, printed very well, as did Baudville's 816/Paint, which printed fine in both the 640 and 320 superhi-res modes. But with Paintworks Plus, version 1.1, from Activision, the Epson could not handle bit-mapped graphics that were reduced in size and rotated 90 degrees on the page. I could not get VIP Professional to print either spreadsheets or graphs.

Most Apple II software should print just as well using the Grappler C/Mac/GS as it would with the serial port, but don't expect "ImageWriter emulation" to give a low-priced printer any fancy features it doesn't already have. Grappler's firmware translates most ImageWriter commands into something parallel printers can handle, but if an unrecognized command slips through, the results are unpredictable. Welcome to the world of less-than-100% compatibility.

VITAL STATISTICS

GRAPPLER C/MAC/GS

A "smart cable" serial interface that lets many parallel printers emulate the Apple ImageWriter. For the IIGS, it includes a "screen dump" Classic Desk Accessory.

Apple IIc/os/c+ or Macintosh, one 5¼-inch disk drive, mouse optional, ProDOS, not copy-protected

PRICE: *$119*

Orange Micro, Inc.
1400 North Lakeview Avenue
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CIRCLE READER SERVICE NO. **351**

Documentation and Support

One 28-page booklet provides documentation for Apple IIc, Apple IIGS, and Mac users. The illustration in the booklet shows slider-type DIP switches, but the unit that I received from Orange Micro had rocker-type switches. I was not sure which switch position corresponded to ON but guessed correctly the first time. You can't hurt anything by setting the switches wrong, but you may print some garbage before finding the right combination.

Grappler carries a one-year warranty, and Orange Micro provides a technical-support hot line.

Why Buy One?

The Grappler C/Mac/GS is particularly cost-effective for schools upgrading to the IIGS that have a large inventory of older parallel printers for their Apple II Plus and IIe computers.

Any IIGS owner with a parallel printer should consider the Grappler. You give up your investment in a parallel-interface card, but you gain the ability to print from programs that create graphic output for the ImageWriter. ✚

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The user manual is easy to understand and is packed with money saving U-DO-IT information. The Drive Analyzer tests and calibration routines alone will pay for Master Diagnostics after using it just once.

Expert Opinions

Nibble magazine says, "This program should be in the library of every Apple user". Howard Sams Tech Manual, Apple Orchard, InCider Popular Computing, and the Apple II Review have all awarded Master Diagnostics with triple AAA ratings. *Consumers Guide chose Master Diagnostics as one of the best programs for 1985.* Used by Apple service centers world-wide.

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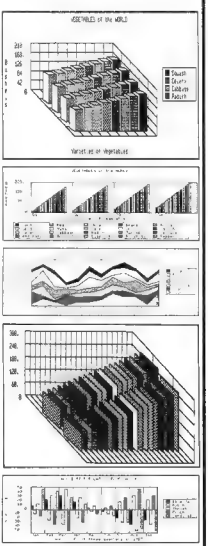

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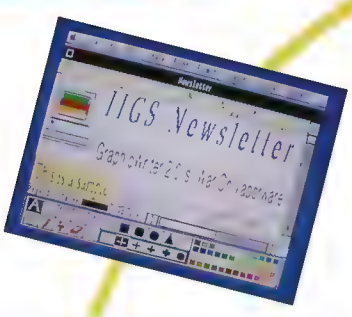
CIRCLE 207 ON READER SERVICE CARD

Experts and users agree GraphicWriter is the desktop publishing program for the Apple IIgs.

New Improved Version 3.0! Call for Details



inCider magazine says, "GraphicWriter 2.0 is a giant step forward for the Apple IIGS. It's a powerful way to produce exciting page layouts, and it's easy to do."

A+ magazine declares, "GraphicWriter facilitates a smooth blend of text and graphics, and the result is a tool that you can use for everything from writing a letter to creating page layouts with color separations."

Compute has this to say: "GraphicWriter really comes into its own when you want to integrate text and graphics." And 10,000 owners agree. Laurie Knight of Hemet, CA proclaimed, "Terrific program! It does everything I need to do." Roger Ruthberg of Philadelphia, PA thinks it's excellent, well worth twice the price."

GraphicWriter, which is color and laser printer compatible, combines word processing, graphics and page layout into one complete, easy-to-use package. The program needs only 512K of memory, and is not copy protected. And, most importantly, it's available NOW.

	GraphicWriter	Medley	Publish It!
IIGS-Specific	Yes	Yes	No (e, c, GS)
Memory Requirements	512K	1.25 MB	128K
Operating System (included)	GS/OS™	ProDOS 16	ProDOS 8
Uses Color Display	Yes (640 mode)	Yes (640 mode)	No
Suggested Retail Price	$149.95	$195.00	$99.95
LaserWriter printing	Included	Included	$39.95
SampleTemplates	Included	Available	$39.95
Clip Art	Included	Included	Included
Spelling Checker	Included	Included	Not Available
Total Cost	$149.95	$195.00	$179.85

Suggested retail only $149.95

Seven Hills Software

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CIRCLE 157 ON READER SERVICE CARD

Remember when this board meant power and speed?

A majestic nine feet ten inches long and a shade under fifty pounds, the 1966 Big Boy surfboard represented the epitome of power and speed. Today, there's AE's new RamKeeper™.

Imagine. Turn on your IIGS and instantly the finder comes to life! All the speed and RAM power your IIGS was meant to have, packed into one, affordable "electronic hard disk."

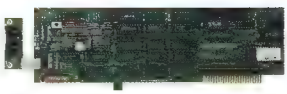
Applied Engineering's RamKeeper. A system that works like a hard disk, only better. It retains stored programs *and* data while your computer is turned off (like a hard disk), but gets up and running five times faster. RamKeeper is solid state, has no moving parts and, unlike a hard disk, has no heads to crash and no parts to wear out. And RamKeeper saves wear and tear on your disk drive, because you don't need it nearly as often.

RamKeeper even powers up to two memory cards *simultaneously* while your computer is off. And the battery backup we include keeps power to the boards, even during power failures.

Your programs and data remain stored in a permanently accessible state, always ready to run. Your computer waits for *you* . . . instead of you waiting for it.

Superior power backup.

RamKeeper comes complete with sealed Gel/Cell batteries for emergency backup in the event of a power outage. Gel/Cell's are by far the most reliable backup power source in this application. Unlike the Ni-Cads others use, Gel/Cell batteries don't lose capacity if not discharged periodically.



RamKeeper lets you keep programs and data in permanent, "electronic hard disk" memory. Turn your Apple IIGS on and you're ready to work.

Our Gel/Cell pack gives you up to six hours of total power failure backup. And the sealed battery pack stays *outside* your computer case, where an unlikely leak won't ruin your computer circuitry.

RamKeeper uses a Switching Power Supply — the same technology used by Apple for the IIGS power supply. This design uses energy much more efficiency to keep your Apple running cooler.

Powers two memory cards in the same slot.

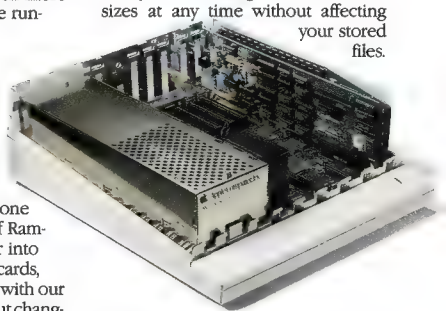
Have Apple's memory card, but now want the features of Applied's GS-RAM card? With RamKeeper, both cards act as one larger card. In one slot. Just attach one memory card to each side of RamKeeper and plug RamKeeper into the slot. And even with two cards, you can still keep slot 7 open with our optional Slot-Mover. All without changing the way either your memory card or your software now operate.

RamKeeper also works fine with only one memory card.

Makes all your memory usable memory.

RamKeeper powers up to 16 Meg. of memory. You can also mix and match different types of memory cards. For example, an Apple card that uses 256K RAM chips and an Applied Engineering card using 1 Meg. RAM chips. RamKeeper firmware automatically configures for two cards when the second card is installed. No need to manually move jumpers.

RamKeeper configures memory linearly to avoid memory gaps that can cause crashes. And *you* decide how much memory to devote to ROM and to RAM from the IIGS Desk Accessories menu. You can configure Kilobytes or Megabytes of instant ROM storage for your favorite programs. And you can change ROM and RAM sizes at any time without affecting your stored files.



RamKeeper is easy to install. Just plug it in. Even when you use two memory boards, you don't have jumpers. You can have two memory boards but use only one slot.

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Protect from program crashes.

Reinstalling operating software is not fun. With RamKeeper you'll never have to. Since RamKeeper controlling firmware is in an EPROM, a program crash can't take out the operating software.

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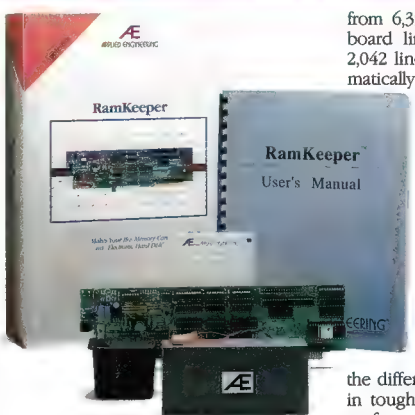
RamKeeper firmware uses optional startup checksums to verify that no data was lost while the power was off. The firmware also runs ROM and RAM memory tests without disturbing data on the card.

Significant differences.

Applied Engineering's longer experience with battery-backed memory boards shows in the way we designed and built RamKeeper. There are significant differences between RamKeeper and other systems:

- RamKeeper includes a Gel/Cell battery for 6 hours of total power failure backup, other use the shorter-life Ni-Cads and charge extra for them
- RamKeeper powers up to 16 Meg., others power only up to 8 Meg. maximum
- RamKeeper permits mixing and matching different memory cards and chip sizes, others have more limited combinations
- RamKeeper automatically configures for two cards, others have manually-moved jumpers
- RamKeeper configures linearly to eliminate memory gaps, others don't
- RamKeeper includes EPROM-protected operating software, others use floppy installation



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- RamKeeper's software expands AppleWorks internal limits, others don't
- RamKeeper includes disk-caching software, others don't

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Applied Engineering's powerful AppleWorks Enhancement software comes free with RamKeeper. It's well worth the purchase price alone. Our software makes AppleWorks faster and far more powerful by eliminating internal memory limits. Word processor limits increase from 7,250 to 22,600 lines. Database limits increase from 6,350 to 22,600 records. Clipboard limits increase from 255 to 2,042 lines. Our software even automatically segments large files so you can save them on multiple floppies

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SPEAKING OF GRAPHICS

SpaceLace and Fractal Explorer make math graphic.

BY ROBERTA SCHWARTZ AND MICHAEL CALLERY

Regular readers of this column know that we have only occasionally touched on the mathematical basis of computer graphics. Powerful Apple II software tools alleviate the need to delve into math to create images, even animations. The programmers who create these tools for us, however, must employ sophisticated algorithms to endow their programs with certain effects. Perhaps the best examples are the 3-D effects in Electronic Arts' Deluxe-Paint II and Activision's Paintworks Gold. The results are slow because the programs must calculate new pixel positions, using trigonometric functions, for each pixel in the area that's undergoing transformation.

Mathematics can be the basis of art as well as an enabling tool. We've mentioned the Ceemac graphics language in several of our columns (most recently in the November 1988 issue)—math is the core of Ceemac. For example, the lovely wavy lines in so many Ceemac scores (programs) are referred to as splines by computer-graphics people (see figure 1, created with the unreleased Ceemac for the Apple IIGS). You don't have to program the mathematics of a spline in Ceemac—you only have to tell Ceemac what the shape should be by feeding the Spline command several parameters. Ceemac does the rest.

We've recently received two other packages that enable you to create mathematical art without the angst normally associated with such programming.

SPACELACE

SpaceLace from Great Wave Software is the creation of Lucia Grossberger and Bob Bishop, two longtime Apple II artist/programmers. Subtitled "an interactive kaleidoscope," the program generates colorful, randomized, symmetrical designs. The SpaceLace disk contains separate programs for each of the graphics modes on the Apple II, from low-res to super hi-res. Obviously, only Apple IIGS owners can run all of the programs, but even owners of the pre-Plus Apple II will find this package a good value. (One of the kaleidoscopes runs only on Apple II, II Plus, and IIe computers, as it requires the cassette I/O jack, which is not present on the Apple IIc, GS, and IIc Plus.)

Booting SpaceLace brings you a menu offering a choice of preprogrammed kaleidoscopes or modifiable "kaleidomakers." The preprogrammed kaleidoscopes are keyboard-interactive; that is, pressing a key alters the kaleidoscope's parameters (see art, this page). It may speed up the display, change the colors, or change the symmetry. The variations are endless and often quite beautiful. Choosing "kaleidomakers" yields two choices: The first choice generates low-res to double-hi-res kaleidoscopes, and the second generates super-hi-res kaleidoscopes. By typing commands, you can control the color, symmetry, speed, action, and que size (setting the design density) of the kaleidoscope.

The users' guide to SpaceLace is comprehensive, starting with how to build a traditional tube-with-mirror kaleidoscope to how to program your own kaleidoscopes in Applesoft BASIC. We do wish Grossberger and Bishop had incorporated a Save Screen command. Some of the kaleidoscopes are so impressive that it seems a shame not to be able to capture them easily. (We used Thirdware's Finger-Print to capture some.)

This program is especially useful for teachers of beginning computer graphics who want to introduce

MATHEMATICAL COMPUTER ART

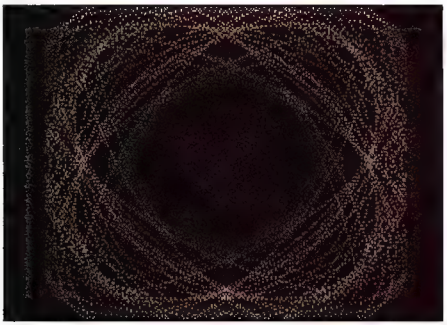

Figure 1: The unreleased graphics language Ceemac for the Apple IIGS created this pattern of dots.

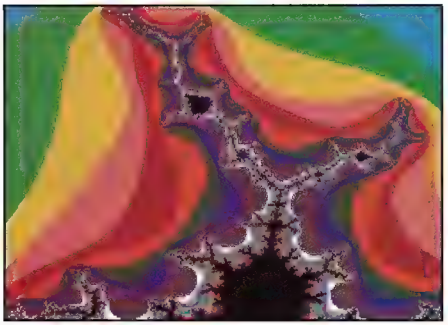

Figure 2: Fractal Explorer can help you make spectacular images like this one, even if you're not a mathematician.

the concept of kaleidoscopes to their students. With the holiday season upon us, SpaceLace is also a terrific stocking stuffer for any Apple II graphics enthusiast.

FRACTAL EXPLORER

The second mathematical-art product we received is based on more complex mathematics. Fractals are a family of shapes, most of which involve some sort of randomness. Most fractals can be scaled to any size while retaining their basic form. The term *fractal* was coined by IBM scientist Benoit Mandelbrot, who explains his theories in his book *The Fractal Geometry of Nature* (San Francisco: Freeman, 1977). *Fractal* is really an umbrella term that embraces a wide variety of mathematical oddities that mathematicians have turned up over the centuries. Mandelbrot discovered their commonalties and unified them in his theory of fractals.

All of this sounds hopelessly academic but, as Mandelbrot himself noticed, nature herself happens to have a fractal basis, from the shape of clouds and mountains to the growth patterns of plants. It turns out that we live in a fractal world. If you were trying to program a realistic landscape (as opposed to drawing it with a paint program), you'd use fractals. Other mathematical methods just don't make for "realism."

Fractal Explorer from ECLAT MicroProducts allows you to study fractals without investing the time to master the mathematics.

Fractal Explorer contains preprogrammed fractal images based on a fractal type called the Mandelbrot set. You can view these images, alter the color selection, and save the altered images in a form compatible with paint programs. A second section of the program allows you to create new images based on the preprogrammed ones. The program is no speed demon in creating the new fractals, as a lot of computation has to take place, but the resulting images are truly spectacular (see figure 2).

Nature herself has a fractal basis, from the shape of clouds and mountains to the growth patterns of plants.

Unlike SpaceLace, Fractal Explorer has separate versions for hi-res/double hi-res and super hi-res. If you have an Apple IIGS, you'll want the super-hi-res version. We feel Fractal Explorer is a boon to all who teach computer graphics, and, like SpaceLace, it makes a swell stocking stuffer.

UPGRADES AND UPDATES

ComputerEyes Getting Better

We've received new software for ComputerEyes for the Apple IIGS. Digital Vision has added several new functions and improved the color-dithering algorithms. We especially like the ability to save a "raw data" file to disk for later manipulation. By saving such a file, you can manipulate your digitized image without redigitizing it. Once the image is to your liking, you can save it in a standard Apple IIGS format for use in other programs. ComputerEyes owners can upgrade to the new software by sending their original disk and $7.50 (plus $1 shipping and handling) to Digital Vision, 66 Eastern Avenue, Dedham, MA 02026; (800) 346-0090; (617) 329-5400. We think you'll find it's worth it.

More Awards

Award Maker Plus fans will be happy to know that Baudville has just released Award Maker Sports: hundreds of new award styles, fonts, and borders for use with Award Maker Plus. As always, the borders are wonderful. Of the four fonts, we most like Pen Script, an attractive script font. The art varies from serious to humorous.

Baudville is also offering a trade-in opportunity: Registered owners of Blazing Paddles can upgrade to 816/Paint for $35 plus $3 shipping and handling. Baudville constantly provides updates and revisions of its products. If you're not on the firm's mailing list, request a catalog by contacting Baudville at 5380 52nd Street S.E., Grand Rapids, MI 49508; (616) 698-0888.

The Graphic Exchange

From the discussions we've had with you at AppleFest, we know that the maze of graphic file formats has nearly everybody confused. How can I get the picture I drew with XXX into ZZZ? (Fill in your own program names.) Roger Wagner Publishing has a solution. Longtime Apple users know that Wagner is one of the pioneers of Apple II software. We've mentioned his programmers' toolboxes in previous articles, and we've always favored Printographer, his

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graphics-printing utility. Roger is now marketing an essential utility called The Graphic Exchange.

Simply put, The Graphic Exchange allows you to convert nearly any type of Apple II graphic from one format to another: low-res to super hi-res, super hi-res to NewsRoom clip art, hi-res to double hi-res, and so on. (We say "nearly" just to cover ourselves: The Graphic Exchange probably doesn't convert to the unique graphic file format your uncle Albert cooked up for his custom programming efforts.)

This utility belongs in the library of every Apple II graphics person.

Those of you who also use a Macintosh can convert to and from MacPaint. Simply pop a Macintosh disk into the Apple II disk drive; The Graphic Exchange can read a Macintosh disk directly.

This is one utility we can confidently say belongs in the library of every Apple II graphics person!

By the way, Wagner has revised Printographer to run under ProDOS and to print double-hi-res and low-res images, and he has also added mouse control. As with the older versions of Printographer, you have access to the loading, saving, and printing routines for use in your own, noncommercial, programs. If you own the original version of Printographer, contact Roger Wagner Publishing for upgrade information.

Logo

Terrapin has released a ProDOS version of Logo—finally. Logo PLUS features several new graphics commands and abilities, including text on the graphics screen, a Fill command, and a turtle-shape editor. If you're using Terrapin Logo on 128K Apple IIe, IIc, or IIGS systems, we recommend updating. For $35, you'll gain a much more powerful Logo. Send your update request to Terrapin at 376 Washington Street, Malden, MA 02148; (617) 492-8816. ✚

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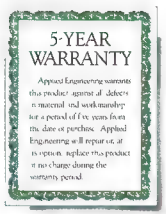

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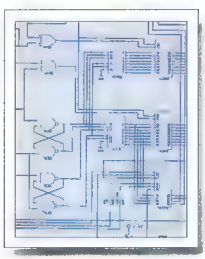

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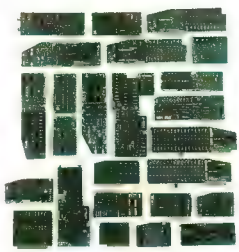

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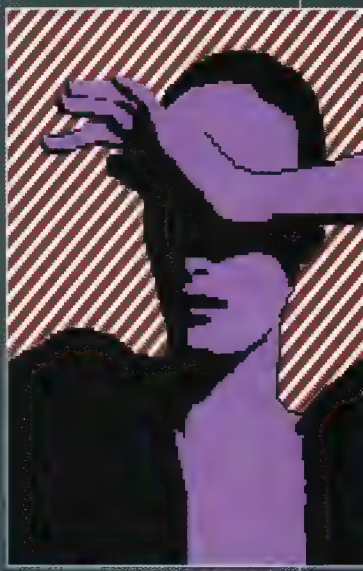
SPEAKING OF GRAPHICS GALLERY

APPLES AFAR

People all over the world are creating exciting graphics with their Apple II computers, and we're happy to see so many of their artistic efforts come our way as "Gallery" submissions. This month's "Gallery" shows off art from Canada, Mexico and Singapore. Heather England's Paintworks Plus renderings are representations of Northwest Coast Indian art, and Alberto Basurto's family worked together with Deluxe Paint II to create some of their images.

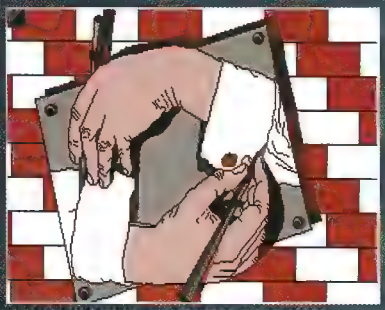
SUNDIVER, **DAVID RAHARDJA**
Singapore



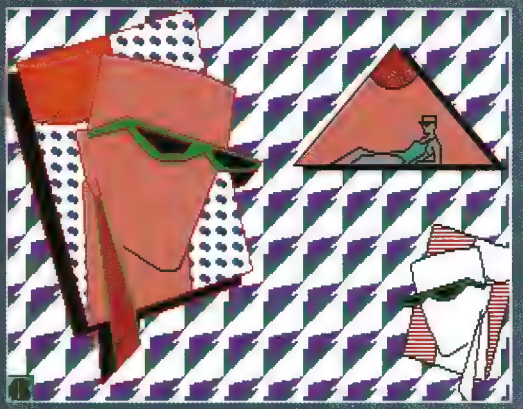
SOMBRAS, **ALBERTO BASURTO**
Jutepec, Morelos, Mexico

TOTEM, **HEATHER ENGLAND**, *Langley, BC, Canada*

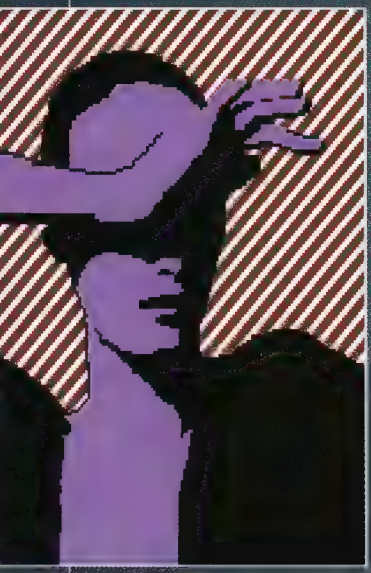
RAVEN, **HEATHER ENGLAND**

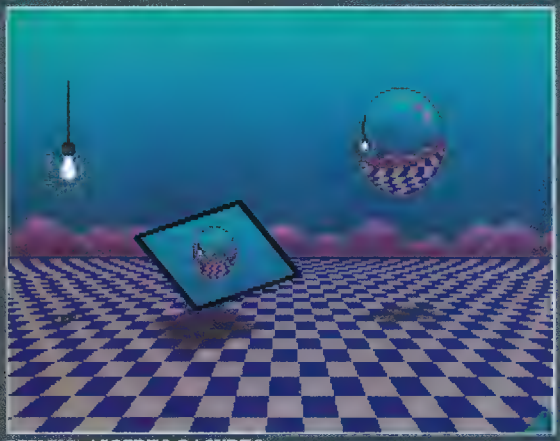


MANOS.ESCHER, **ALBERTO BASURTO**

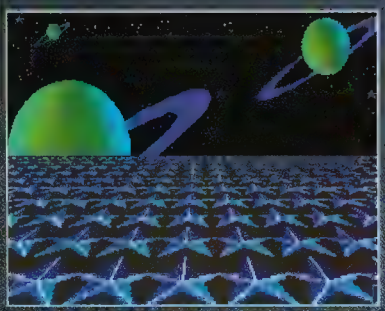


CUERNAVACA, **ALBERTO BASURTO**





REFLEJO, **ALBERTO BASURTO**



JUPITER, **ALBERTO AND KARLO BASURTO**

MMHHH, **ALBERTO AND LETICIA BASURTO**

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COMING SOON, THE CLASSIC MIND GAME, QIX.

CIRCLE 342 ON READER SERVICE CARD

GAMEPORT

BY BOB LINDSTROM

Silver-screen bunnies meet the II, and a plea for mouse-potato games

TOONTOWN TRAVELS TO THE II . . .

And the bunny boasts byte-sized boffos when Who Framed Roger Rabbit entertainment software arrives on the IIe, the IIc, the IIGs and the new IIc P-p-p-p-p-plus.

With animated angst and a p-p-p-p-pulsating speech impediment, Roger Rabbit was the surprise ink-and-paint superstar of the Summer '88 silver-screen season. And his p-p-p-plush and p-p-p-pulchritudinous wife, Jessica Rabbit, became the first cartoon sex symbol since Betty Boop.

With the big screen so enthusiastically backing Roger's exploits, could the little screen be far behind? It took Buena Vista Software just a few months to pack the crazed cartoon action of *Who Framed Roger Rabbit?* into a video monitor. The result is an action-filled achievement that turns the color and humor of *Roger Rabbit* into a rapid-fire, gag-packed arcade game.

©THE WALT DISNEY COMPANY AND AMBLIN ENTERTAINMENT, INC.

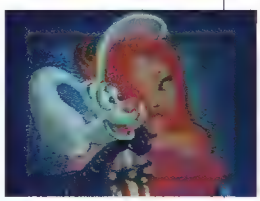
Stretch those ears and start stuttering, "Game-P-p-port" p-p-patrons, because you'll be p-p-playing the harebrain himself, Roger Rabbit, in a trio of adventures.

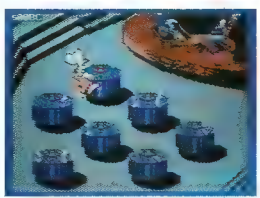
First, you drive Benny the Cab through the streets of Los Angeles on a collision-prone course to the Ink and Paint Club. Benny's overextended spring suspension can bounce over autos and onto roofs when the route gets congested. The faster you arrive at the club, the more time you will have to save Jessica.

At the Ink and Paint Club, you weave wildly between tables and penguin waiters trying to locate a will mixed up in the evening's tablecloths, menus, and blue-plate specials. Get too careless in your scramble, though, and a gorilla bouncer will toss you into a shadowy alley.

With will in hand, it's another Benny-bumpy ride to the Gag Factory, where a bound-and-gagged Jessica is waiting to be spritzed with paint remover by Judge Doom's Dipmobile. Roger has to search the warehouse packing cases for gags that will make the weasels laugh to death. It's here that the animation shines as Roger tries out such demented yuck-tools as portable holes, nose glasses, and vanishing cream.

Who Framed Roger Rabbit? is great fun for computer gamers. It's also great news when





major entertainment-industry players such as Touchstone Pictures, the Walt Disney Company, Steven Spielberg's Amblin Entertainment, and Buena Vista Software get together to bring their form of amusement to computer software.

THE MOUSE-POTATO ALTERNATIVE

You've just reached the tenth level of the dungeon. Your party has earned maximum hit points over a ten-week period of development, and you're about to nab

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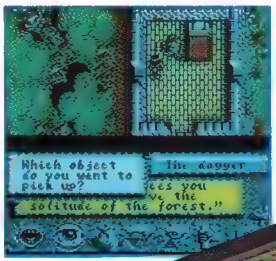

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the magic jewel/sceptre/chalice to kill the evil wizard/demon/king. Suddenly, a party of ninja marauders jolts into the screen and slaughters your heroes, wiping your data-disk clean. Back to level 1.

Maybe you're rockin' and rollin' through level 255 of that favorite arcade game, headed toward an all-time high score and the secret bonus level. Oops, the mouse pad slips. You lose your last life, your high score, the bonus level, and your desire to embark on another multi-hour quest for points.

Or perhaps you're just stuck in the starter dungeon, booting and rebooting the disk, not enjoying a product that the reviewers say is the greatest thing since video screens.

Are we having fun yet?

Fact is, as much fun as computer games can be, they often are so difficult, so challenging, so downright brutal in their design that they aren't really *that* much fun. Sometimes you really don't want to bruise your joystick hand, your mouse controller, or your self-esteem. Maybe you just want to escape from a tough day at the school/office/torture chamber and veg out with a modest computerized diversion.

If this sounds familiar, congratulations. You are a Mouse Potato. You may represent the future of computer entertainment.

Game designers and programmers have become masters of brain- and digit-busting challenges to contrive hours of screenside action. Unfortunately, the barely surmountable encounters designed to extend play value often provide only a few frustrating hours of effort, and then the software sits unused on the shelf forever. It's just too darned hard to win.

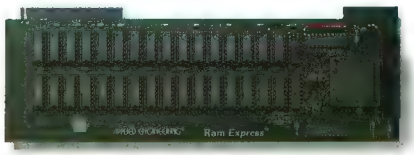
After another defeatist day, do you want to face more crash-and-burn reality on your Apple? I don't think so. Modest challenges and decisive triumphs might be a more rewarding way to cap a grueling eight-hour shift.

So, in the best January-sermon tradition of the "GamePort" column, this month I'm asking Mouse Potatoes to squeak up on behalf of games that offer more fun and less tension, time-filling activity instead of spirit-crushing troubles.

You've already made your statement, Mouse Potatoes. You've made Activision/Mediagenic's Shanghai one of the most popular games in the world. Created by Brodie Lockard, this Mah Jongg-inspired diversion is now available on 24 computer systems worldwide. Its casual pace (unless you choose to get aggressive in the timed Challenge mode) has struck a playful chord on the keyboards of micros around the globe.

To game publishers anxious for a piece of the mass-entertainment market, "GamePort" says: Take it easy on us. The hard-core game market you've been entertaining may have a much bigger appetite for defeat than your average Mouse Potato. Give us relaxation instead of humiliation. You might be surprised at the response. ✚

Ram Express™ for the IIc and IIc Plus



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The IIc is a fine computer and Apple is rightfully proud of their new IIc Plus. With two operating speeds, a 65C02 processor and an internal 3.5 drive, the 128K computer has almost everything going for it. Almost.

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ENTERTAIN

A helicopter simulation, two board games, and two kinds of battles for your Apple II

WOULD YOU OR WOULDN'T YOU?

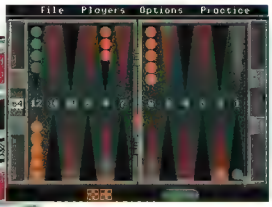
A commonly held theory has it that, given the right situation, a person might do anything. Would you pose nude in a national magazine for $10,000? If someone you don't particularly like invites you to an expensive restaurant that you'd love to try, would you go just for the meal? These are 2 of the 230 dilemmas you face in the new computer version of the popular board game A Question of Scruples.

Actually, Scruples is less interested in what you *would do* than in what you would *admit to doing*—under the right circumstances, of course. You begin the game by dealing an equal number of dilemma cards and one answer card to each of the players. The answer cards have one of three responses: "Yes," "No," and "Depends." Your object is to ask one of the other players a dilemma question that will elicit the same response as the one on your answer card. So if one of your dilemma cards asks about posing nude and your answer card says "No," you ask the question to the player most likely to say "No." If you have astutely chosen your respondent, you get to discard the dilemma card, and if you're the first player to get rid of all your dilemma cards, you win the game.

The strategy lies in figuring out which questions to pose to whom, and success depends on correctly psyching out your fellow players. Therefore, Scruples is best played with family or close friends. Which brings up the biggest problem I have with multiplayer games, board or computer: I can never find interested companions who are available when I am to play them. Well, Scruples has anticipated my problem, so it comes with a database of

A QUESTION OF
SCRUPLES
THE COMPUTER EDITION
YOU LOSE AN EXPENSIVE DIAMOND RING AND ARE REIMBURSED BY YOUR INSURANCE COMPANY. SHORTLY AFTERWARDS YOU FIND THE RING. DO YOU RETURN THE MONEY?
SHIRLEY
SELECT QUESTION

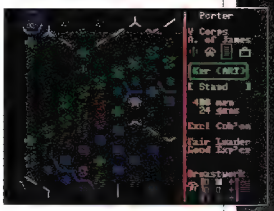
MENT REVIEWS



64 different playing partners. You can play with 2 or more computer players or with any combination of 3–10 computer and human players, up to 10 total. You can even select three computer players and just sit back and watch them play!

The computer players "come from all walks of life . . . [and] range from punks to senior citizens, from clergymen to gangsters." You choose your partners from a selection of faces; then Scruples shows you bar-chart computer profiles of their personalities to help you second-guess their responses. I had a lot of trouble assessing the personalities of the computer players in the time allotted to view their bar charts, however. This game's greatest weakness is that you cannot get to know computer-generated people. You cannot become familiar with their personalities, peccadilloes, and peculiarities the way you can with people you know.

Playing the computer version of Scruples with real people presents its own problems, though. All questions, responses, and answers are displayed on the computer screen. Each player's hand is best kept secret from the other players, so only the player whose turn it is should look at the screen when questions are displayed—an awkward situation for a group of players clustered around a monitor.



By turning this board game into a computer game, the manufacturer thwarted the very element that made Scruples challenging and even titillating: the interplay between people and the opportunity to get them to reveal their secret thoughts and feelings.

I really got to like Scruples, but I'm going to buy the board version. Now if I can only generate some humans to play with . . .

Don Oliver

A QUESTION OF SCRUPLES
Apple II+/e/c/gs/c+, 48K RAM; one 5¼-inch disk drive, color monitor recommended
PRICE: *$39.95*
Leisure Genius/Virgin Games
Distributed by
Electronic Arts
1820 Gateway Drive
San Mateo, CA 94404
(800) 245-4525 • in CA (800) 5622-1112
(415) 571-7171
CIRCLE READER SERVICE NO **401**

AS REAL AS IT GETS

Apple IIGS pilots are in for a sensory treat with Tomahawk, the latest version of DataSoft's excellent helicopter simulation. In its GS form, Tomahawk delivers crisp, brilliant graphics and sound so realistic that you'll be checking your chair to make sure you're sitting still.

Tomahawk simulates the AH-64A Apache gunship, the U.S. Army's most sophisticated attack helicopter. Like its real-world counterpart, the Tomahawk is a fast, agile machine that will bite you if you're not careful.

The game involves

THE GAMES:™ SUMMER, WINTER,

You're in Seoul, Korea sweating alongside the world's greatest athletes. Or the Canadian Rockies facing finely-tuned challengers who've waited a lifetime for a shot at the gold.

You're geared up. You're set. You're playing The Games.

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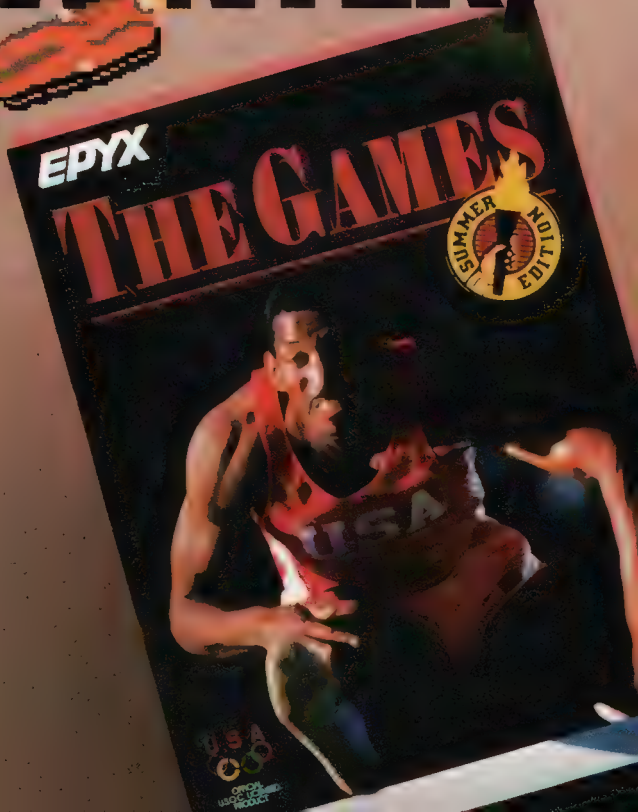
Eight events that test your power, skill and guts.

Relive the heart pounding excitement experienced by the 1988 U.S. Olympic Team.

Sprint down a 110 meter track, clearing hurdles in a fraction of a second. Or jam your pole in the planting box and vault over a cross bar.

Hold a handstand in the Rings competition, straining every muscle in your arms. Follow up with a perfect triple twist in the diving event.

Then try for another medal or two in Sprint Cycling, HammerThrow, Uneven Parallel Bars or Archery. It's your chance to make history.



USA

The only computer games to earn an official license from the 1988 U.S. Olympic Team.

SPRING AND FALL.

WINTER EDITION:

Set world records without leaving home.

Race down a snowy slope or jump off one. Ski a slalom or cross-country course. Speed skate, figure skate, cruise the luge at 95 mph. Then see what the judges think of your heroic efforts.

To keep your pulse racing regardless of temperature, The Games feature exciting sound effects, dramatic camera angles, first person views and 3-D imagery.

Plus the traditional pageantry — colorful flags, opening, closing and awards ceremonies — staged in realistic settings.

Take on the computer or your friends. (Up to eight can play, each representing a different country.) And to make the action even more heated, play with an EPYX high performance joystick.

You'll find that The Games will keep you in the mountains, in the water and on the edge of your seat all year long.

Commodore 64/128, Apple II & Compatibles, Macintosh, IBM & Compatibles, Amiga.

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Screens from Commodore and IBM.

CIRCLE 111 ON READER SERVICE CARD

EPYX®

REVIEWS REVIEWS

clearing battlefield sectors of enemy tanks and radar sites, which are often hidden behind trees or mountains, while contending with hordes of enemy helicopters.

The Tomahawk is armed with three different types of weapons: laser-guided Hellfire missiles, rockets, and an automatic cannon called a Chain Gun. The easiest weapon to use is the Hellfire missile, which automatically tracks the target and rarely misses. You'll score more points, however, for destroying targets with rockets or guns, which require greater skill.

The program provides true stereo sound on Apple IIGS computers equipped with a stereo card and either stereo speakers or headphones. But even in its mono configuration, the audio fidelity of the Tomahawk is superb on the GS.

You're greeted with the gentle "wop-wop-wop" of the rotors when the cockpit display appears on the monitor. Then, when you increase power, you'll hear the sound of the turbines as they wind up. I've flown military jet-powered helicopters, and my adrenaline started pumping when I heard the engines whine. All that's missing is the vibration of the helicopter and the kerosene smell of jet exhaust.

Unfortunately, pilots of other Apple II-series computers have to settle for the "crump" of targets being destroyed.

Flying a helicopter is not the same as flying a fixed-wing aircraft, and Tomahawk accurately reflects this difference. You can control the helicopter with the keyboard or a joystick. A joystick gives a more realistic "feel," but the keyboard provides excellent response and control. You can also use a mouse to handle such functions as weapon selection and engine power adjustment.

The 3-D graphics display is most impressive when you're flying below 500 feet, as the terrain shows up in much greater detail than it does above that altitude. You can even fly between mountains, but it's difficult, and you'll crash repeatedly while learning how. The color is always brilliant, and the contrast is excellent.

Two aspects of Tomahawk are confusing. First, when the handbook explains landing, it says, "When your chopper is 12 meters off the ground . . ." The altimeter in your helicopter displays altitude in feet, not meters, however. Failing to note the difference quickly results in a crash. Second, the vertical speed indicator (VSI) of the Tomahawk displays the number of feet per *second* that the Tomahawk is climbing or descending. I've never flown an Apache, but all the aircraft I have flown (and simulators, for that matter) indicate feet per *minute*. I crashed a few Tomahawks before adjusting to the difference.

On the Apple IIe and IIc, Tomahawk provides visually exciting 3-D graphics and challenging combat action comparable with that of other simulators designed for 64K of memory. Tomahawk for the IIGS, however, is one of the most accurate, realistic simulation programs available for personal computers. Now, if they could just find a way to get the smell of kerosene in there.

Mark DuCharme

TOMAHAWK
Apple II+/e/c/c+, 64K RAM, one 5¼-inch disk drive; Apple IIGS, 512K RAM (768K recommended), one 3.5-inch disk drive, copy-protected
PRICE: *$39.95*

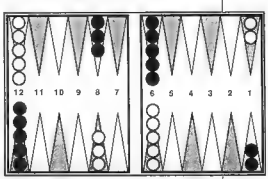
DataSoft
19808 Nordhoff Place
Chatsworth, CA 91311
(818) 886-5922

Distributed by Electronic Arts
1820 Gateway Drive
San Mateo, CA 94404
(800) 245-4525 • in CA (800) 562-1112
(415) 571-7171

CIRCLE READER SERVICE NO. **402**

GOOD GAMMON GAME

Club Backgammon from California Dreams is a faithful Apple IIGS adaptation of the classic board game of strategy and luck. If you enjoy playing backgammon but can't always find a willing opponent, you'll appreciate the computerized adversary. The program fails to



fully exploit the solid-state medium, however, and does little to teach novice players the finer points of the game.

Club Backgammon uses the super-hi-res graphics screen of the IIGS to render a colorful playing board. The program automatically puts the game pieces into position and takes care of rolling the dice. If you

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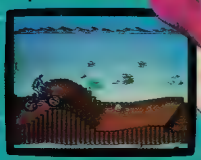
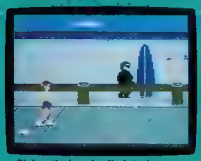
Try shredding the face of a totally tubular wave. Join the airforce in a BMX bike race. Screech around on skates and then rocket off the skateboard ramp.

You'll be playing for sponsors like Ocean Pacific, NHS Santa Cruz, CASIO, Costa Del Mar, Kawasaki, and Spinjammer. For trophies and an overall championship.

So get air. Go crazy. Welcome to the state of California.



BMX. Where wheelies are the breakfast of champions. And everyone else eats dirt.



Slalom the boardwalk obstacle course on roller skates.

Launch a few feet off-the-lip with your skateboard tucked high. And while you're up there, dance for the crowd.

CALIFORNIA GAMES BY

EPYX®

Commodore 64/128, Apple II's, Compatibles, IBM & Compatibles, Amiga

CIRCLE 175 ON READER SERVICE CARD

don't trust the computer-generated rolls, you can roll the dice that come in the package and enter the results.

The program keeps track of every move and can print a hard copy of the log either as you play or at the end of a game. If you make a move you later regret, take heart. Club Backgammon lets you rescind as many moves as you like. Moreover, you can ask the program to evaluate the current board setup and recommend your move. This feature would be more helpful if it were represented graphically; the game presently uses arcane terminology such as T12+=6, B8+=1: -37.

Club Backgammon is exclusively mouse-controlled, and a menu bar provides access to the game's many options via pull-down menus. It is not copy-protected, but before you can play the game, you must enter a password from the documentation—the third letter in line 4 on page 37, for example. This protection scheme is annoying but allows you to make backups and run the program from a hard disk or RAM disk.

As you would expect, Club Backgammon lets you challenge a human opponent or play against the computer, which can play as a novice, intermediate, or expert. Not being a backgammon-for-blood player, I expected the computer to trounce me, but, unfortunately, it plays a rather mediocre game even in the expert setting. An updated version with improved algorithms for the computer opponent should be available by the time you read this review.

Another improvement I'd like to see is the ability to advance a piece the total value of the dice in one move. As it stands, you must first move as many spaces as allowed by one die and then move the number from the second die. Also it would be nice if you could select more than one piece at a time to facilitate moving multiple pieces when doubles are rolled. Finally, California Dreams should exploit the computer medium to offer features impossible on a game board. For example, to acquaint novices with the concept of moving pieces around on the board, the program could highlight valid destinations with the current roll of the dice.

If you'd like a computerized version of backgammon or want a patient opponent that won't scream at you for counting each space as you move around the board, Club Backgammon is a worthy choice, even considering its few shortcomings.

Owen W. Linzmayer

CLUB BACKGAMMON (VERSION 1.0)
Apple IIgs, 512K RAM, one 3.5-inch disk drive, ProDOS 16, password-copy-protected
PRICE: *$39.95*

California Dreams
780 Montague Expressway, Suite 403
San Jose, CA 95131
(408) 435-1445

CIRCLE READER SERVICE NO. **403**

THE MIDDLE OF THE WAR

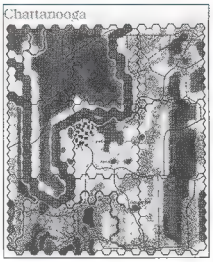
Even on a clear day, Civil War generals moved in a fog. They often lost contact with far-flung subordinates and rarely knew the enemy's numbers or location. Orders and dispatches, limited to the speed of a horseman, arrived hours late. Battles were unplanned, as Yanks and Rebs blundered into one another and nearby regiments marched toward the sound of the guns.

Carefully researched and highly detailed, the second installment of SSG's Civil War series is more than a tactical simulation. It is a continuing study of command and control on the 19th-century battlefield. The package includes five battles from the middle years of the war:

•Gaines Mill (June 27, 1862). One of the Seven Days' battles during McClellan's retreat from the gates of Richmond. Lee hurls attack after attack at a determined Union rear guard.

•Stones River (Murfreesboro; December 31, 1862). A Union army advancing from Nashville is blocked by an equal Confederate force. Both armies plan to strike the enemy's right flank first thing in the morning. The Confederates attack before breakfast, thereby gaining the advantage of surprise.

•Gettysburg (July 1–3, 1863). The "high-water mark of the Confederacy." Lee's invasion of Pennsylvania is turned back by a superior Union army in the bloodiest battle ever fought in America.



•Chickamauga (September 19–20, 1863). Fought across a wide swath of Georgia woodland, this battle was the South's last great victory, won at terrible cost.

•Chattanooga (November 23–25, 1863). Besieged by strongly entrenched Confederates around this key rail junction, the Union army breaks out at Lookout Mountain and Missionary Ridge. The road to Atlanta lies open . . .

The package includes a double-sided disk (program on one side, scenarios on the other), two quick-reference cards, a colorful foldout map, and a 48-page manual that lacks helpful illustrations of game screens. The complex, menu-driven game system takes practice to master.

The program can play either side, using formidable "artificial intelligence" to crush a careless or unlucky opponent. Written to fit in 64K of

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Now there's no need to settle for a still life...Art & Film Director is the comprehensive art program that could literally breathe life into a stone.

Art & Film Director can be found at fine stores everywhere. You can also charge it by phone (Visa or Mastercard): (408) 848-3042, Operator #12. Or send your check or money order for $79.95 (tax included) + $5 (shipping and handling) to: EPYX, INC., Dept. #12, 2995 Woodside Rd., Ste. 400-383, Woodside, CA 94062. (Specify name of software product you wish to order and computer type—Apple IIGS or Atari ST.) Please allow 4-6 weeks for delivery. Sorry, no international orders.

Reads artwork from DEGAS™ Elite, Deluxe Paint,™ NEOchrome,™ Paintworks Gold,™ and Paintworks Plus.™

768K memory required for use with Apple IIGS.

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RAM, the program is coded in assembly language for snappy performance. Map and design utilities let you alter any battle to explore historical "what-ifs" or create your own games from scratch.

If authors Roger Keating, Malcolm Power, and Ian Trout could be persuaded to join the stampede to 128K games, we might hope for richer graphics and friendlier systems than this game offers, but we could not ask for better historical fidelity or more challenging situations. This game belongs in the library of every Apple II war gamer.

Mike Markowitz

DECISIVE BATTLES OF THE AMERICAN CIVIL WAR, VOLUME TWO: GAINES MILL TO CHATTANOOGA

Apple II+/e/c/gs/c+, 64K RAM, one 5¼-inch disk drive, color monitor recommended, master disk is copy protected, scenario disk is not

PRICE: *$40*

Strategic Studies Group
1747 Orleans Court
Walnut Creek, CA 94598
(415) 932-3019

Distributed by Electronic Arts
P.O. Box 7530
1820 Gateway Drive
San Mateo, CA 94404
(800) 245-4525 • in CA (800) 562-1112
(415) 571-7171

CIRCLE READER SERVICE NO. **404**

OVER THE BOUNDING MAIN

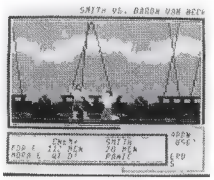
"Ahoy thar, mateys! We're off to the Spanish Main for plunder and adventure in Pirates from MicroProse."

This great game combines role-playing adventure and arcade-like action. It's full of sea battles, sword-to-sword confrontations, treasure maps, lost relatives, and the lure of advancement from lowly buccaneer to a royal appointment. All you have to do is sail the seas, manage a crew of cutthroats, fight broadside sea battles, pillage villages, fight off scurvy and mutiny (if you're a bad captain), and play diplomat with territorial governors and their daughters.

Sound easy? Then you should love this game. You can play at various levels in any of several time periods. The game is based on historical fact, so each era reflects the climate of a certain period. The easiest time to play is during the 1660s, when piracy in the Caribbean was at its peak.

The Spanish Treasure Fleet and Silver Train move on fixed schedules up and down the coasts of the Spanish Main. Capturing either of these prizes provides lots of booty. Hidden treasures are marked on treasure maps you get from various ne'er-do-wells. Long-lost relatives, freed from captivity, may provide clues to even greater riches. You often have to pursue evil noblemen from port to port, however, finally subduing them with your sword before they help you find your captive sister, mother, or father.

In sea battles, smart maneuvering and good use of sea conditions and



sailing skill can gain you the advantage, but eventually you'll need to board the ship and pit your blade against that of the enemy captain.

Sword fighting is fun, and since you're the leader of your shipmates, their morale depends on your skill and effectiveness with a saber. A force with high morale can easily defeat one with superior numbers but low morale.

You can also interact with townspeople. The merchants buy captured ships, repair damaged ones, and buy and sell goods. The governor can grant you letters of marque, promotions, and even royal rank.

If you do well at this game, you can assume high naval rank in more than one country and become a marquis or a duke with vast private lands. If you do poorly, you may spend time in prison, waiting to return to sea.

Pirates is a graphically excellent example of fine game design from top to bottom. The manual and other materials, particularly the historical map, are superb, and you can perform all game functions with a mouse or joystick. Although the graphics in the Apple II version are not as detailed as in the IIGS version, they do not lack any important detail. The IIGS version has a slight technological edge, but the game plays well on both systems.

Pirates offers many adventurous hours of enjoyment. Each unique campaign depends entirely on your skills and decision making.

Rusel DeMaria

PIRATES

Apple IIgs, 256K RAM, one 3.5-inch disk drive, joystick optional; Apple IIe/c/c+, 128K RAM, one 5¼-inch disk drive, composite color monitor (no RGB)

PRICE: *$39.95*

MicroProse Software, Inc.
180 Lakefront Drive
Hunt Valley, MD 21030
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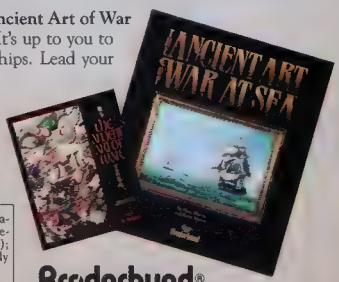
Three ways to buy: Visit your software dealer or call (800) 527-6263, 8am-5pm PT for credit card purchases and order-by-mail details.



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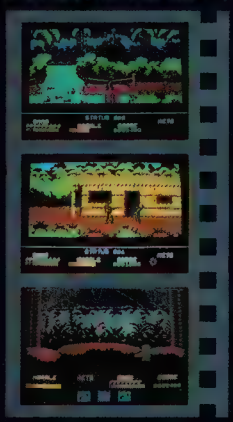

DATA EAST

DATA EAST USA, INC.
470 NEEDLES DR., SAN JOSE, CA 95112. (408) 286-7074.

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SMARTPORT

Foreign languages on your ImageWriter

BY OWEN W. LINZMAYER

The ImageWriter is a versatile printer whose more esoteric options remain largely unused because its manual doesn't explain how to take advantage of them. In this installment of "SmartPort," you'll learn how to use AppleWorks to create special characters, print accents over letters, and access the ImageWriter's foreign-language fonts. I'll also show IIGS owners how to display foreign-language characters on-screen.

It Makes Cents

I've always been baffled by the omission of the cent symbol on the Apple II keyboard. By defining a custom printer in AppleWorks, you can print the cent symbol, as well as several other "nonexistent" characters (see figure 1).

The trick to printing such characters is to print one character, move the printhead back one position, and overstrike the first character with a second. To create a cent symbol, for example, print a lowercase *c*, backspace, and overstrike it with a slash or vertical bar. All you need is a way to tell your application to make the printer backspace.

From the Other Activities menu in AppleWorks, choose `Specify information about your printer(s)`. Add a custom printer, name it SpecialWriter, and specify which slot it is connected to. From the Printer Codes menu, define the code for Subscript Begin as Control-H (the backspace code for the ImageWriter I and II). If you are unfamiliar with the practice of defining printer codes, consult chapter 6, "Using Printers," in your AppleWorks reference manual or see "AppleWorks Report" in the November and December 1988 issues of *A+*.

Now whenever you need to create a special character from within an AppleWorks word-processor document, type the base character you want; press Ó-O (Printer Options); enter -B (Subscript Begin), Return, -E (Subscript End), Return, Escape; and type the overstrike character. You'll see two carets (ˆˆ) between the base and overstrike characters, representing the embedded Subscript (really backspace) commands. When you print the document to the SpecialWriter, all characters joined by Subscript commands will be printed on top of each other, creating special characters and symbols.

Using this trick, you can also place accents and other diacritical marks over the appropriate letters in foreign words and phrases such as *déjà vu* and *coup d'état*. This trick works only when both the base and overstrike characters appear on the keyboard, however. Some characters, such as the upside-down question marks and exclamation points of Spanish, can be printed only if you use an alternate language font.

In addition to the American character set most of us are familiar with, the ImageWriter can print eight alternate language fonts (see figure 2). When using an alternate language font, all characters are printed exactly as they appear on the keyboard and on the screen, with the exception of the symbols in figure 2. For example, if you are using the Spanish font, an upside-down question mark (¿) will print anywhere an end bracket (]) appears on the screen.

There are two ways to engage an alternate language font. One is to change the DIP-switch settings inside the printer (see figure 3). Use this technique only if you want to permanently change the default character set from American to one you'll use more often.

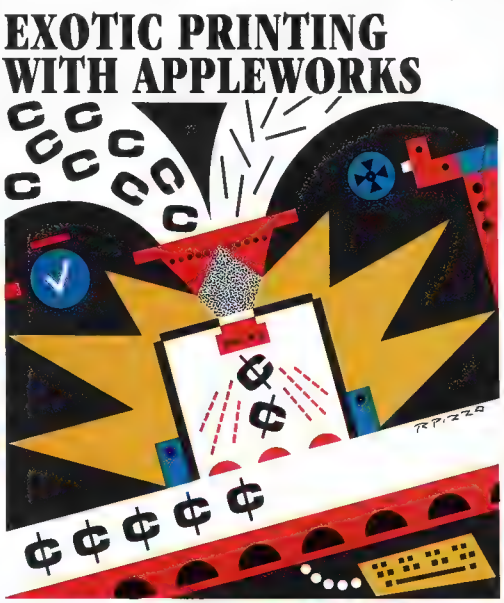

ILLUSTRATION BY ROBERT PIZZO

To switch among alternate language fonts on the fly, you can enter the font Escape sequences from figure 3 as redefined printer-enhancement codes (boldface, subscript, superscript, underline), which gives you access to several different fonts from within a single document. For example, enter the Escape sequence for the Spanish font (Escape D Control-G Control-@) as the SpecialWriter's Superscript Begin code and use the Boldface Begin code to return to the American font (Escape Z Control-G Control-@). Never use the characters/lines-per-inch codes to define other features, because AppleWorks determines margins and page layouts based on the use of these commands.

Whenever you wish to use Spanish characters in your document, insert the Superscript Begin and End commands, type your Spanish text, and follow it with the Boldface Begin and End commands to return to the American font. The End commands, since you didn't define their codes, are really dummy commands, but you have to insert them to get proper printouts.

To enter the phrase "Where is John?" so that it prints correctly in Spanish, type Ć-O, +B, Return, +E, Return, Escape. Then type `]Do'nde esta' Juan?`. To insert the backspace commands, position the cursor before each of the single quotation marks and type Ć-O, -B, Return, -E, Return, Escape. Finally, to return the printer to the American font, position the cursor after the question mark and type Ć-O, BB, Return, BE, Return, Escape. The screen will display ¯]Do¯'nde esta¯' Juan?¯, which will print correctly as ¿Dónde está Juan? on the SpecialWriter.

Foreign WYSIWYG

If you own an Apple IIGS, you can display foreign-language characters on the screen and type them directly from the keyboard. Press Control-Ć-Escape to get to the CDA (classic desk accessory) menu, choose `Control Panel`, and then go to the Options menu. Set both `Display Language` and `Keyboard Layout` to Spanish and return to AppleWorks. If you intend to make this setup permanent, consult your Apple dealer about obtaining replacement key caps so that the physical keyboard matches the Spanish layout.

Base	Overstrike	Symbol	Meaning
C	|	¢	cents
<	_	≤	less than or equal to
>	_	≥	greater than or equal to
=	/	≠	not equal to
+	_	±	plus or minus

Figure 1: You can create "nonexistent" characters by having your ImageWriter print a base character and overstrike it with a second character.

American	#	$	@	[	\	]	^	`	{	|	}	~
British	£	$	@	[	\	]	^	`	{	|	}	~
German	#	$	§	Ä	Ö	Ü	^	`	ä	ö	ü	ß
French	£	$	à	°	ç	§	^	`	é	ù	è	¨
Swedish	#	$	@	Ä	Ö	Å	^	`	ä	ö	å	~
Italian	£	$	§	°	ç	é	^	ù	à	ò	è	ì
Spanish	£	$	§	¡	Ñ	¿	^	`	°	ñ	ç	~
Danish*	#	$	@	Æ	Ø	Å	^	`	æ	ø	å	~

* Available only on the ImageWriter II

Figure 2: The alternate language fonts available on the ImageWriter I and II printers

LANGUAGE FONT	CODE						DIP SWITCHES 1-1	1-2	1-3
American	Escape Z	Control-G	Control-@				OPEN	OPEN	OPEN
British	Escape Z	Control-D	Control-@	Escape D	Control-C	Control-@	Closed	Closed	OPEN
German	Escape Z	Control-C	Control-@	Escape D	Control-D	Control-@	OPEN	OPEN	Closed
French	Escape Z	Control-A	Control-@	Escape D	Control-F	Control-@	OPEN	Closed	Closed
Swedish	Escape Z	Control-B	Control-@	Escape D	Control-E	Control-@	Closed	OPEN	Closed
Italian	Escape Z	Control-F	Control-@	Escape D	Control-A	Control-@	Closed	OPEN	OPEN
Spanish	Escape D	Control-G	Control-@				Closed	Closed	Closed
Danish*	Escape Z	Control-E	Control-@	Escape D	Control-B	Control-@	OPEN	Closed	OPEN

* Duplicate American font on the ImageWriter I

Figure 3: To select alternate language fonts on the ImageWriter, you can issue codes from within an application program or change the DIP-switch settings inside the printer itself.

The foreign keyboard layouts are all mechanically the same; that is, the shapes and arrangement of the keys are the same. Only the legends on the key caps are different. Unfortunately, neither the Control Panel nor the *Apple IIGS Owner's Guide* maps out the new key meanings. See figure 4 for the keyboard legends that correspond to ImageWriter alternate language fonts.

EuroWorks

Using these techniques, you can print just about any character with your ImageWriter. Remembering which language font is engaged and consulting charts to determine which key to press for a given char-

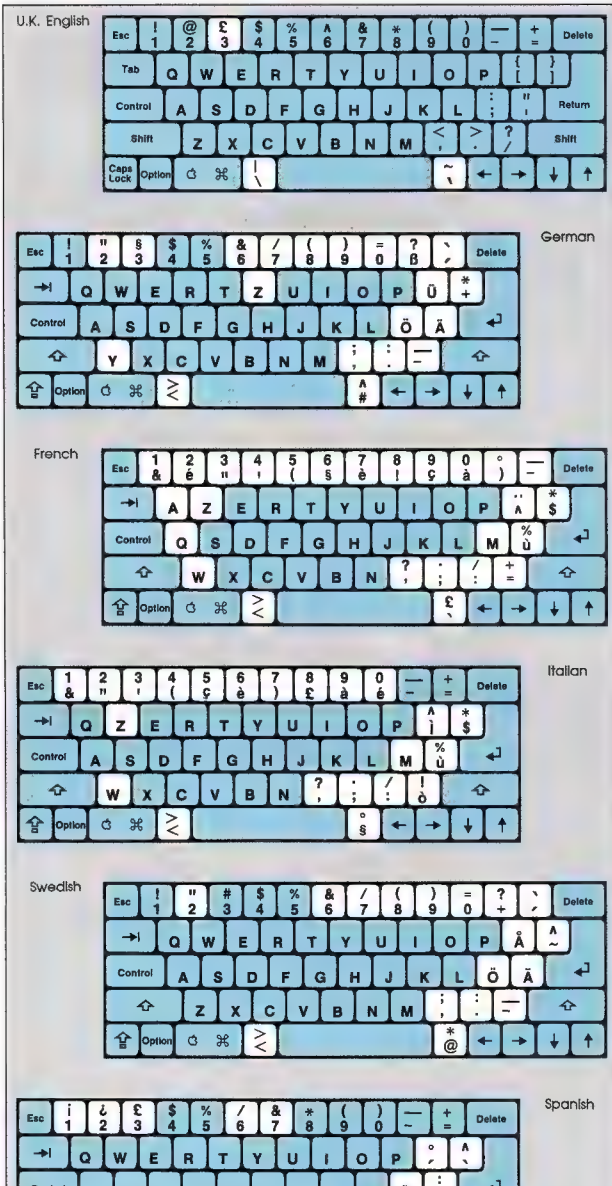

Figure 4: Foreign keyboard layouts. Shaded characters are unchanged from U.S. layout. Reproduced with permission of Addison-Wesley Publishing Company, Route 128, Reading, MA 01867, from The Apple IIGS Hardware Reference, *©1987.*

The ImageWriter's more esoteric options remain largely unused.

acter can be bothersome, though.

A utility called EuroWorks does away with the lookup tables and gives you access to foreign characters without usurping most printer enhancements or any American characters. Foreign files may include every character on your American keyboard, plus 13 French, 7 German, 10 Italian, or 10 Spanish special characters. It adds 8 new American symbols as well.

EuroWorks is written in the Beagle Bros TimeOut UltraMacros programming language. Although it does not require UltraMacros to run, you can use it in conjunction with that package. If you follow the voluminous on-disk instructions, installing EuroWorks onto a copy of AppleWorks (version 2.0 USA or greater) is painless and takes less than one hour.

Whenever you want to use a foreign character in your word-processor document, you enter a special code for that character. Most characters use abbreviations enclosed by asterisks. For example, to print a degree symbol, you enter `*dg*`. When you are ready to print, you invoke the EuroWorks macro and watch as it takes over, converting the codes into the appropriate printer commands faster than the eye can follow. ✚

Owen W. Linzmayer is the technical editor of A+. He would like to thank reader Joseph E. Paris, M.D., of Jacksonville, Florida, for a "Tips and Techniques" entry that was the inspiration for this month's column.

VITAL STATISTICS

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CIRCLE 231 ON READER SERVICE CARD

Claris, the publisher of AppleWorks, answers your AppleWorks questions.

APPLEWORKS HELP FILE

DISK ACCESS

Q. *I use AppleWorks version 2.0 on a IIGS with 256K of memory and one 5¼-inch disk drive. I have heard that when I boot AppleWorks, most of the program should be loaded into memory, and, thus, the program disk should be accessed only when I print. That's not the case for me. When I use AppleWorks, it accesses the disk for each command I issue. Is there any way around this? Will buying more memory solve the problem?*

A. More memory will solve the problem. AppleWorks 2.0 requires a minimum of 512K of RAM for the program to load into memory automatically. With at least that much memory, the whole AppleWorks program—with the exception of the print driver—loads into memory.

SLASHED ZEROS AND EXTRA LINE FEEDS

Q. *I set up AppleWorks to print slashed zeros on my ImageWriter II printer. I added the code Escape D Control-@ Control-A to the Super Serial interface card via the AppleWorks Interface Cards option. The ImageWriter printed the slashed zeros correctly but added a blank line between the lines of text. I verified that the AppleWorks menu item* Needs line feed after each Return *was set to* No, *but the extra line feed continued. I entered the code for reverse line feed, Escape r, after the code for slashed zeros on the interface card. Still the extra line feed. How can I stop this extra line feed?*

A. The Escape D command may cause an extra line feed after each carriage return. To solve the problem, enter the code to remove the line-feed command from the buffer. The code is Escape Z_Control-@. Enter this code by using the Interface cards option on the AppleWorks Add a Printer menu. The complete interface-card code to print slashed zeros without an extra line feed is: Control-I 80N Escape D Control-@ Control-A Escape Z_Control-@

UPDATING ProDOS 1.1.1 TO ProDOS 8

Q. *In the September 1988 installment of "Help File" (page 72), you explain how to update AppleWorks with the old ProDOS version 1.1.1 to the new ProDOS 8. Your response states that I should copy the P8 file from my System Utilities disk to the AppleWorks disk and change the name of the P8 file to ProDOS. I can't find a P8 file on my System Utilities disk. I assume by Systems Utilities disk you mean my copy of the ProDOS 1.1.1 user's disk. How can I place the new version of ProDOS 8 on my AppleWorks disk?*

A. The instructions were admittedly unclear. Those instructions apply to the Apple IIGS System Disk, not to the Apple II System Utilities disk.

The P8 file is located on the Apple IIGS System Disk, not on the Apple II System Utilities disk. If you have the Apple IIGS System Disk, copy the P8 file, located in the SYSTEM folder, to your AppleWorks disk and change the name of the P8 file to PRODOS. If you have the Apple II System Utilities disk, contact your Apple dealer for the ProDOS upgrade and copy the new ProDOS to your AppleWorks disk.

DATE- AND TIME-STAMPING ON THE IIGS

Q. *I've heard that AppleWorks 2.0 date- and time-stamps files on the Apple IIGS. I read in one of the Apple trade magazines that if this was not happening, the solution was to copy ProDOS from the 5¼-inch AppleWorks disk to the 3.5-inch AppleWorks disk. I did so, but my AppleWorks still does not date- and time-stamp my files. How can I resolve this problem?*

A. For AppleWorks to date- and time-stamp files on the Apple IIGS, ProDOS 8 must be present on the AppleWorks startup disk. You can determine which version of ProDOS you have by booting your AppleWorks startup disk and noting the ProDOS version number that appears on the monitor. ProDOS version 1.1.1 or earlier does not correctly access the Apple IIGS clock; ProDOS 8 version 1.4 or later does. To update your AppleWorks disk, follow the instructions in the answer to the previous question.

IIc, APPLEWORKS, AND UNIDISK 3.5

Q. *I have an older Apple IIc computer (not the new IIc Plus) with a built-in 5¼-inch drive. I recently purchased a UniDisk 3.5 drive and plugged it into the external disk-drive connector on the back of the computer. I can't get AppleWorks to recognize the drive. The 3.5-inch drive isn't even listed as an option when I try to change the standard location of the data disk. Why doesn't AppleWorks allow me to access the UniDisk?*

A. It sounds as though the problem is not with AppleWorks but with the IIc itself. To use a UniDisk 3.5 with the IIc, the IIc must have the new 32K ROM. If your IIc's serial number is before F6051GFA24000, then you need the ROM upgrade before you can use the UniDisk 3.5. See your Apple dealer for details.

To see if you already have the upgrade, enter BASIC and type this command: `PRINT PEEK(64447)`. If the result is 255, you do not have the upgrade.

ALTERING SPREADSHEET FORMULAS

Q. *I've just started using the AppleWorks spreadsheet module, and I have two questions. How do I change a formula I have already entered without retyping the entire formula? Also, how do I delete an entry I have typed in a cell so that the cell remains but is now blank?*

A. To edit or change a previously entered formula, move the cursor to the cell that contains the formula and press Ó-U. The formula will appear at the lower left corner of the monitor with a small flashing cursor. Use the ← and → arrow keys to move the small cursor to the point in the formula you wish to change. You can delete characters with the Delete key or add new characters by typing them.

To blank out a single entry, one or more rows of entries, one or more columns of entries, or a block of entries, use the Ó-B command. This command removes the cell entry or entries but doesn't delete the cells themselves. In other words, if you choose to blank out an entire row, all the entries will disappear from the row, but the now-blank row will remain as part of the spreadsheet. To remove both the row and its contents from the spreadsheet, use the Ó-D (delete) command.

COLUMN-SUMMING MACRO

Q. *Where can I find a macro to sum a column in the AppleWorks database module? I have a database of more than 700 entries, with a dollar value for each entry.*

A. You can sum a database column of numeric entries with the Ó-T command. To total a database column, enter the list view of your database and follow these steps:

1. Press Ó-P.
2. Choose `Create a new ''tables'' format` and press Return.
3. Type a name for the report and press Return.
4. Move the cursor to the column you wish to sum.
5. Press Ó-T.
6. Enter the number of decimal places.
7. Enter the number of blank spaces that should follow the category (the default choice of three spaces is generally the best).

Once you have completed the above steps, AppleWorks displays 9s in the column you have chosen to total, indicating that the column is set to total. When you print the report, the actual entries replace the 9s, and the total of these entries appears at the bottom of the column. Make sure all the entries in the column you want to total are numeric, and do not precede any of them with a dollar sign.

The technical staff at Claris Corporation answers your AppleWorks questions. Call the Claris Technical Support Department at (415) 962-0371 (6:00 A.M. to 8:00 P.M., Pacific time) or write to Help File, A+, 950 Tower Lane, 18th Floor, Foster City, CA 94404. Because of limited space, we aren't able to publish responses to all inquiries we receive.

SHORT REPORT

BY JIM CARLISLE

A SWEET SPREADSHEET

The AppleWorks spreadsheet module is a great "what if" tool. Teachers have found its "what if" facet to be an excellent way for students to look at all sorts of information, everything from their grades to the weather. The following lesson probably isn't the best way to teach good nutrition, but it will introduce students to the "what if" power of the spreadsheet module. It's also lots of fun and will definitely grab the attention of even the most reluctant learner.

These activities are probably best suited for students in the upper elementary grades and above. They are easy to adjust to suit almost any grade level, however. I've even used variations of this plan with second-graders.

Before You Begin

Before attempting this lesson with students, teachers should construct the spreadsheet (see figure 1). That will point up problem areas students may encounter.

You'll need one regular-size package of M&Ms for every student, one large package of M&Ms, the AppleWorks program, and at least one computer.

As soon as your students discover that the lesson will involve M&Ms, you can forget about other motivational techniques. Tell your students at the outset that they will get to eat their M&Ms to their heart's content after the lesson.

Before your students open their package, ask them to estimate the number of M&Ms they'll find. Also ask them to estimate the number of M&Ms in each color category (red, green, yellow, orange, light brown, dark brown). Have them write down their estimates.

Collecting Data

At this point, let your students open their packages, count their

M&Ms, and record the total number and number for each color. They will do a lot of discussing and comparing. The students can prepare a quick graph of their results if they simply lay out their M&Ms in columns by color. Recording the individual results on the blackboard in a row-and-column format can also be helpful.

Constructing a Spreadsheet

You are now ready to construct a spreadsheet. If you have an LCD display panel and an overhead projector, you may want to treat this project as a class activity. If you are working in a lab, you can present each student or team of students with the problem and ask them to construct the spreadsheet. If you have neither, you may want to construct the spreadsheet ahead of time and let your students enter their data and discuss the results.

You will want columns to record package size (number of ounces), total number of M&Ms in each package, and the number of M&Ms of each color. Each column should then provide class totals and percentages for each color. You also need a column for determining the number of M&Ms per ounce in each package and in the entire class. You might also want to have your students compute their own individual percentages with pencil and paper.

How do individual packages compare to the class total? Is any single package an exact representative of the group total? Do the students think the percentages would be the same for larger packages of M&Ms—how about smaller ones?

Further Refinements

Based on the data you've collected, you can now further refine your spreadsheet to predict the number of M&Ms you'll find in larger (or smaller) packages. Use the number of M&Ms per ounce and multiply by the number of ounces in the larger package to get a predicted total for the larger package. Based on the color percentages in the smaller packages, you can also have your spreadsheet predict the number of each color in the larger package—multiply the color percentages in the smaller package by the predicted total for the larger package. Once you've made your predictions with the spreadsheet, open your large bag of M&Ms and see if your predictions were right!

If you and your students carefully construct your spreadsheet, you can play "what if" and then check to see if your spreadsheet is making accurate predictions. Interesting discussions will develop around how much data collection is necessary to create a spreadsheet that gives reliable predictions. You can spin off additional lessons on statistics and probability, as well as lessons dealing with nutrition and economics.

Your students might also like to write the Mars Company and tell it of their spreadsheet results or formulate questions about production, packaging, marketing, etc. How do they get those *M*s on each candy?

This sweet spreadsheet might be just what you need to enliven a cold winter day. Try it out, and let me know what you find out! ✚

Jim Carlisle is the coordinator/director of the Teachers' Idea & Information Exchange. TI&IE provides a mechanism for AppleWorks-using educators across the country to exchange AppleWorks files and templates. Contact TI&IE, P.O. Box 6229, Lincoln, NE 68506; (402) 483-6987, for TI&IE disk 45/46, which contains the spreadsheet this article describes.

Figure 1: The M&M spreadsheet

Student	Package Size Oz.	Red	Green	Yellow	Orange	D.Brown	L.Brown	Total	M&M's Per Oz
Sasha	1.69	17	7	6	7	16	4	57	33.73
Anya	1.69	10	8	14	7	11	7	57	33.73
Steve	1.69	11	8	16	2	15	6	58	34.32
Nancy	1.69	15	6	15	5	11	6	58	34.32
Danny	1.69	14	10	11	12	8	3	58	34.32
Margaret	1.69	17	5	6	9	18	4	59	34.91
Orville	1.69	15	5	11	10	14	4	59	34.91
Totals	11.83	99	49	79	52	93	34	406	34.32
Percentages ---------->		24.38%	12.07%	19.46%	12.81%	22.91%	8.37%	\\\\\\\\	\\\\\\\\

	Package Size Oz.	Red	Green	Yellow	Orange	D.Brown	L.Brown	Total	M&M's Per Oz
For Prediction Enter Package Size in Oz. ----------> Press Apple-K Twice	16	133.90	66.27	106.85	70.33	125.78	45.98	549.11	34.32
Actually counted ---------->		90	48	90	55	174	70	527	32.94
Percentages---------->		17.08%	9.11%	17.08%	10.44%	33.02%	13.28%	\\\\\\\\	\\\\\\\\
Difference Between Predicted & Real Count ---------->		43.90	18.27	16.85	15.33	-48.22	-24.02	22.11	1.38
Difference Between Assumed & Real Percentages ---------->		7.31%	2.96%	2.38%	2.37%	-10.11%	-4.91%	\\\\\\\\	\\\\\\\\

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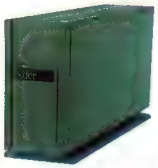

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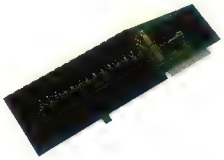

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LEARNING CURVE

The consequences of using computers to engage learners

BY DAVID D. THORNBURG

I recently received a letter from a reader, Dr. Anitra Gordon, who took issue with some comments of mine in the August 1988 "Learning Curve." In that column, I suggested that multimedia learning environments can help promote the experience of "flow," the total engagement of the learner by the subject matter.

Dr. Gordon disagrees on a few of the points I made: "You talk about the richness in a 30 second soft drink ad. I think you are confusing education and entertainment with this reference. I'm enclosing a chapter from [Neil] Postman's *Amusing Ourselves to Death* because he so excellently clarifies the difference. And he explains the pernicious effects of confusing the two, or worse, of expecting education to be entertainment."

The issue Dr. Gordon raises is interesting to explore. Anyone who has used personal computers in the classroom knows that children are eager to use them. Does this eagerness come from the entertainment aspect of computers or from the ability of the computer to present information in a form that makes the material accessible to learners?

The Postman chapter, "Teaching as an Amusing Activity," lambastes television programs such as "Sesame Street" and "The Electric Company" for changing children's perception of what the educational process should be.

Postman asserts, "If the classroom now begins to seem a stale and flat environment for learning, the inventors of television itself are to blame." He bases his criticisms of television as an instructional medium on his perception of TV's commandments:

- Thou shalt have no prerequisites,
- Thou shalt induce no perplexity,
- Thou shalt avoid exposition like the ten plagues visited upon Egypt.

EDUCATION AS ENTERTAINMENT

Postman expresses the concern that educators are rushing to make their classrooms more like television shows and that we are losing quality in the process. He feels that the multimedia Voyage of the Mimi program (built around television, books, and computer activities) is an example of educational content being determined by the character of the video medium, turning a potentially valuable curriculum into a "mindless" activity.

Postman goes on to say that children are being told that "anything worth learning can take the form of an entertainment." He suggests that students will not rebel if their English teacher asks them to learn the parts of speech through rock music or if their social-studies teacher "sings to them the facts about the war of 1812."

In short, he criticizes attempts to make education "delightful."

Taking Postman's views into account, I can understand why Dr. Gordon leveled criticisms against my comments of last August. On reflection, however, I think a growing body of solid educational research points to a position closer to mine than to Postman's.

As I mentioned last August, human beings are motivated to experience "flow," which is the sense many of us have when we are reading a good book and discover, to our surprise, that many hours have gone by in a flash. A term I use to describe flow is engagement. You can be fully engaged in mathematics, writing, history, reading, skiing, chess playing, mountain climbing, watching television. People who are fully engaged, who are experiencing "sweet spots in time," often find that they can remember a great deal about what they were doing during that time.

As we explore techniques for en-

ILLUSTRATION BY JOHN CRAIG

gagement of students, we have no further to look than to Professor Gardner's research on multiple intelligences (described in his book *Frames of Mind* and applied to education by Thomas Armstrong in his book *In Their Own Way*). Each of us can be shown to have varying degrees of linguistic, logical/mathematical, intrapersonal, spatial, musical, bodily-kinesthetic, and interpersonal intelligence, but much of the present curriculum is geared toward the highly intrapersonal linguistic and logical-mathematical learner. Armstrong's studies have shown that many children with identified "learning disabilities" are hampered by the methods of teaching, not by their ability to learn.

In the days before this research, we could be forgiven for our failure to acknowledge each child's unique blend of learning styles. On the other hand, if our society can provide adjustable chairs for secretaries, why can't it accommodate the different learning styles of children? We don't look the same, so how on earth did we ever get the idea that we all think the same?

We don't look the same, so how on earth did we ever get the idea that we all think the same?

Let's Get Engaged

The issue of entertainment is important only to the extent that it provides engagement. To suggest that a curriculum be made entertaining by watering it down is to seriously misrepresent my position. To take Postman's example of the War of 1812, I think that most students would gain a new perspective on that conflict by listening to Tchaikovsky's "1812 Overture," exploring the relationship between the musical themes and the progress of the war itself. Perhaps students would want to know more about the event once they realized it was the subject of a grand piece of music. If such an approach constitutes "singing" the facts, I fully applaud it!

Tragically, much of education has been devoted to the presentation of predigested knowledge for which there are only answers and no questions. Sacramento is the capital of California, $2 \times 3 = 6$, and no one is asking what students think about anything. The typical viewer of the "Phil Donahue Show" is exposed to more divergent thinking than a high school student gets in an entire day.

Thinking Goes to School

Many forward-looking educators are working hard to incorporate thinking skills into the curriculum, and much of the quality work in educational technology supports this goal. I agree that children should be perplexed, they should be stretched, they should be engaged. I also feel that a fully engaged learner can find the process entertaining—entertaining as opposed to boring. There is no engagement in boredom or anxiety.

So how do we resolve these issues in today's classrooms? First, I don't see how we can engage children who have a high level of spatial intelligence if we talk at them all day. The same is true of musical,

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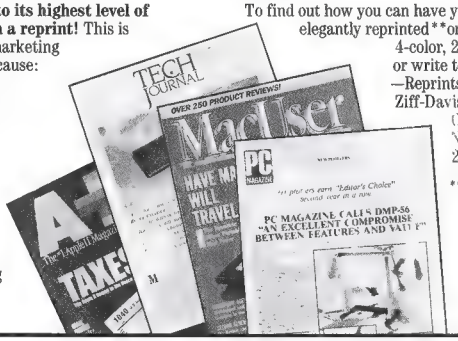
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Children should be perplexed, they should be stretched, they should be engaged.

bodily-kinesthetic, and interpersonal children. On the other hand, we can combine technological wonders with an understanding of individual learning styles to present challenging content in a form suitable for all children.

I have had the pleasure of seeing such a combination succeed, when a child who was "bad at math" (i.e., without highly developed logical/mathematical intelligence) was exposed to geometry and tiling patterns as part of a computer-based Logo activity. With the honoring of her spatial intelligence, this child quickly developed bridging tools that let her handle the numerical side of math with great facility.

This experience is one of the reasons I am so encouraged by California's creation of a new framework for the teaching of mathematics, a framework that acknowledges this topic to be one that engages the visual, kinesthetic, musical, and logical senses. The framework also affirms the power of computers and calculators as tools for exploration, not as tools to make math easy.

The use of computers in math instruction is even making accessible to high school students the field of fractal geometry, a branch of mathematics that lay beyond the comprehension of most mathematicians until the middle of this century.

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Technology allows education to become engaging. If a student becomes so entranced with a subject that it becomes "entertaining" to him, who am I to complain?

Whether in the form of television, computers, videodisc players, or some other tool, technology can, if it is used carefully, do much to help our children become highly self-motivated learners for whom education becomes an enjoyable lifelong process.

Neil Postman says, "Children enter school as question marks and leave as periods." If he is right, we had better change the way we teach. ✚

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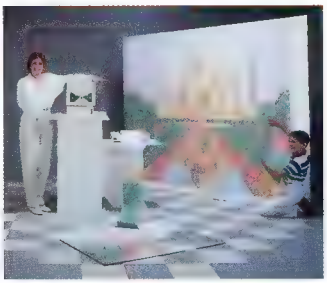

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A+ TEACHERS' TOOLBOX

English as a second language—a sampling of programs for your II

BY JENNIFER BRAWER

Recent analyses of the nation's population trends tell us that school demographics will change dramatically during the next ten years. In addition to experiencing a significant rise in elementary school enrollment, student bodies will be more ethnically diverse and consist of more LEP (limited English proficient) students.

Since the number of students requiring language-skills instruction is on the rise, schools are looking

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Since the number of students requiring language-skills instruction is on the rise, schools are looking critically at their ESL (English as a second language) programs. They face challenging issues determining where ESL fits relative to mainstream and special education, and what constitutes effective instruction in language skills. In order to meet the challenges that ESL instruction presents, more and more schools are turning toward computer technology to deliver thorough, motivating, and entertaining language-skills lessons. Fortunately, hardware and software developers are looking into ways to fit their products into ESL instruction.

Apple Computer now offers *Education Solutions Guides*, a reference similar to its *Curriculum Software Guides*, for specialized subject areas. *English as a Second Language Education Solutions Guide* features recommended software titles as well as activity suggestions to help ESL teachers integrate computers and software into their classrooms.

The projected increase of non-English-speaking students has also pressured software developers to come up with programs designed specifically for LEP students. For now, computer-using ESL teachers usually exploit existing basic language-arts-skills programs to teach basic English. If you look around, however, you'll find numerous ESL-specific titles that may be a better choice for your students. Here's a sampling of some popular language-arts and ESL-specific software programs for the Apple II.

Reading with Captain Yes

Reading with Captain Yes is a new program from Addison-Wesley Publishing Company designed for LEP students in grades 2–6.

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The program tracks and records student comprehension during reading activities. The teacher utilities give instructors access to students' comprehension scores for Reading Machine stories and progress through The Story Teller.

Reading with Captain Yes supplements Addison-Wesley's other ESL curricular materials but is general enough to fit within most ESL curricula. The program content is presented beautifully and in increasing degrees of difficulty. For young students, Reading with Captain Yes is a winner.

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Harmony

Harmony is a 14-title, 10-unit series that reinforces instruction for beginning-level elementary students whose first language is not English. Originally developed by the Houston Independent School

Educational Technology's Harmony

District to accommodate an LEP student population of more than 35,000 speaking 97 different languages and dialects, the series takes a functional approach toward second-language instruction by focusing on communication skills students can use immediately at home, school, and play. Each program in the series incorporates digitized speech from a Ufonic voice system to enhance instructional content.

All the programs in the Harmony series follow a similar format. They deal with following directions, identification of body parts, food and beverage names, weather terms, playground terms, animals, and careers.

In Shopping for Clothes, students help armadillo characters Armand and Delia Dillo select and try on different clothes for different activities. The lessons teach clothing and color recognition and assess aural/oral comprehension of vocabulary and grammatical structures. Two skill-building games, a match game and a challenging word maze, provide additional vocabulary and grammar practice.

The Harmony series provides students with excellent vocabulary and grammar skill-building exercises. The armadillos are endearing but not childish, and the quality of the voice output is excellent and easy to understand. This software series is appropriate for use with a wide age range of students, particularly in districts or schools with a large LEP population.

Language Experience Approach

The Language Experience Approach (LEA) is an instructional strategy that works extremely well with ESL students and other language-deficient populations. This approach implements the theory that reading is a by-product of thinking and oral expression. For instruction, LEA means structuring reading and language lessons around students' own experiences.

Teacher Support Software bases an entire software series—entitled Language Experience—on LEA. Two components of the series are Read-a-Logo and Language Experience Recorder Plus.

Read-a-Logo, designed for begin-

Teacher Support's Read-a-Logo

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AAM Adapts standard Apple drives for use with *IIc* $4.95

Additional Apple Compatible Products

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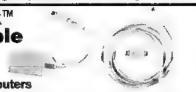
LocalTalk™ Compatible Cables for Apple and Macintosh Computers



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1/89

CIRCLE 308 ON READER SERVICE CARD

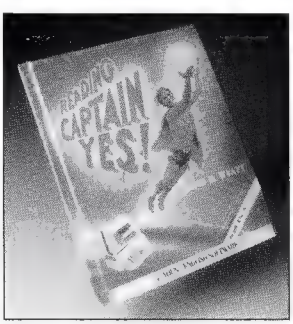
ning readers, links printed words with familiar environmental symbols and logos. Seven programs on four disks teach logo recognition, categorization ("places to eat," "places I go," and the like), sentence construction, idea expression, and story creation. The familiar logos in the program include those of McDonald's, Pizza Hut, Crest, and Coca-Cola. With a speech synthesizer, the program can produce speech for students with limited reading ability.

The Language Experience Recorder Plus is a superb LEA teaching tool that allows teachers to record student stories, word lists, or statements and use them to create and print a variety of instructional materials. Consistent with LEA theory, students' comprehension and reading fluency should improve because the program's instructional materials contain familiar, personally relevant content.

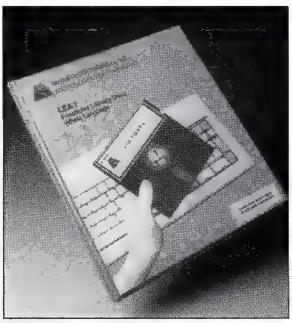
The program has five menu options: teacher utilities, story-analysis features, text-processing tools for constructing an experience story, and a story editor for editing the speech version of stories.

Other components of the Language Experience Series let students work creatively at the sentence and story levels. One of the modules, the Make-a-Flash program, helps you create large, easy-to-read flash cards in assorted colors, using your favorite word-processing program or vocabulary lists created with any program in the Language Experience Series.

An LEA program for adolescent and adult students with little or no English-language proficiency is available from Educational Activities and is called LEA 1 - Functional Literacy Using Whole Language. The program consists of 11 lessons that suggest topics and encourage students to enter original text into the computer. The software then develops lessons from that original



Reading with Captain Yes



LEA 1—Functional Literacy

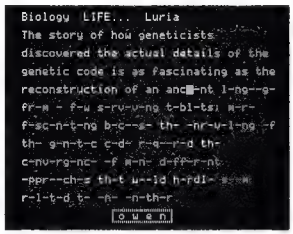
text, compiles individual student word banks, and provides follow-up activities. Topics and prompts encourage students who are reluctant to write.

An important feature of LEA 1 is a visit to the teacher station after completion of each lesson. At the teacher station, teacher and student complete a joint editing session in which they go over the student's performance on the last lesson. The student comes away with word lists, reading exercises, and suggested follow-up activities. In the final lesson, the students each receive their own "book" comprising all the previous lessons. Teachers can print these books along with a cumulative word list from each lesson and a word-frequency count.

M-ss-ng L-nks

ESL teachers recommend Sunburst's M-ss-ng L-nks: English Editor—already a language-arts-software classic in regular classrooms—to develop English vocabulary, increase comprehension, teach how to use context to decipher meaning, and improve spelling.

Designed for students in grades 3–12, M-ss-ng L-nks is a guessing game you play by filling in missing letters in a text passage. The program lets you choose from nine game formats, ranging from the simplest (providing only consonants) to the most difficult (no letters at all). In between are variations such as vowels-only and the first or last letter of each word. The goal is to fill in all the right letters.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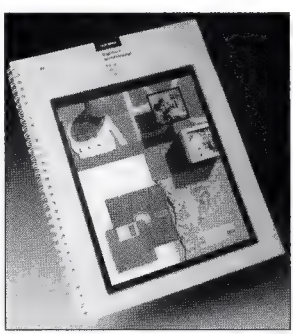
th- g-n-t-c c-d- f-a--r-d th-
c-nv-rg-nc- -f m-n- d-ff-r-nt
-ppr--ch-s th-t w--ld h-rdl- s-m
r-l-t-d t- -n- -n-th-r.

M-ss-ng L-nks: English Editor

Students can play alone or with a partner; the program adapts well to cooperative or competitive exercises. M-ss-ng L-nks includes sample passages, special teacher options, and an editor. Teacher options allow the teacher to restrict student options such as the number of players, game format, and the maximum number of guesses per turn for each player. The editor provides the means to add or delete passages on the M-ss-ng L-nks disk.

Those of you who can't get enough of M-iss-ng L-nks: English Editor can choose from additional



***Apple's* ESL Education Solutions Guide**

programs: Science Disk; Young People's Literature; MicroEncyclopedia; Classics, Old and New; and Spanish Editor.

One More Resource

Educational-software companies take the problem of integrating computers into the school curriculum and the home seriously—so seriously that many publish supplementary information for teachers and parents to provide guidelines for success. A recent product from

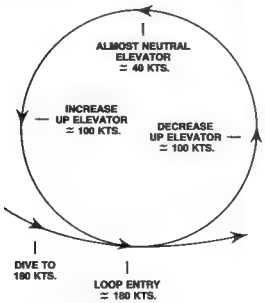
ADVERTISEMENT

Flight notes

3A

Better Loops with Flight Simulator - While the "Flight Physics" manual description is adequate for most, we get enough calls from frustrated computer pilots unable to perform a loop to warrant the following additional instructions. For those already successful at looping the aircraft, these instructions should help make your loops rounder and more satisfying.

After diving to the suggested looping airspeed (180 knots will do), add as much up elevator as possible without stalling the aircraft. As you pitch up and airspeed slows you will have to reduce some of this elevator pressure. Many people leave the elevator setting on high and become frustrated when the aircraft stalls before pointing straight up. In a perfectly round loop your elevator should be almost all the way back to neutral by the time you're upside down. Since airspeed is very slow at the top of the loop (and the portion of the circle traveled is small), your pitch attitude change should be gracefully slow as well. Start adding up elevator pressure again as airspeed increases. By the time you get to the bottom of the loop, the up elevator setting should be where it was when you began the maneuver and your airspeed should be adequate to begin another loop.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In summary, up elevator setting varies throughout the loop. The faster your airspeed, the greater the up elevator pressure. Flight Simulator is the only simulation on the market that accurately portrays the flight characteristics of a light aircraft when performing this maneuver. In reality there's little room for error in the amount of up elevator you can use, and meeting the challenge of performing a perfectly round loop can be a very satisfying experience. You may even find yourself more knowledgable about loops than many non-aerobatic pilots who fly real airplanes. Happy trails!

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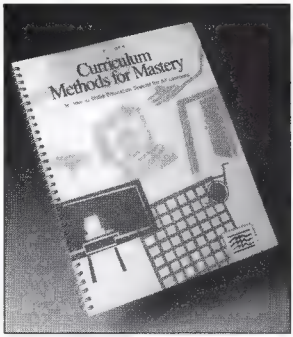

Curriculum Methods for Mastery

Mindscape goes beyond the efforts of most supplementary guides and tackles the integration problem in depth.

Curriculum Methods for Mastery . . . Or How to Make Education Special for All Learners is a comprehensive reference on how to use Mindscape's software products to enhance the educational experience of a variety of special learners. The book includes six chapters that discuss a range of general-interest topics important to educators, such as national demographic trends and home computing.

For the more academically inclined, there is a chapter that delves into the use of cognitive theory pertaining to the transfer of learning, to design curricular units. For teachers and parents setting up a computer-based learning environment for physically limited students, a chapter describes the benefits of using adaptive devices to make computer hardware more manageable. ✚

FOR FURTHER INFORMATION

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PRICE: *Read-a-Logo Levels I & II, $149.95; Language Experience Recorder Plus, $99.95*

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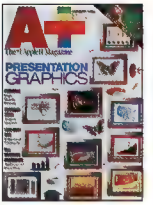
Feb. '88—LIGHTS! CAMERA! APPLE! VIDEO! Plus, IIGS desk accessories update; AppleWorks Report—keeping track of tax deductions; new books about Sculley, Jobs and Apple examined; Teachers' Toolbox looks at Touch Window, WonderWorker, Muppet Learning Keys; and more!

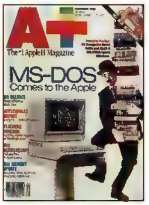


Jan. '88—PRESENTATION GRAPHICS: Getting super-size printouts; Printrix: high quality printing; Thunderscan graphics scanner; entry-level CADApple; TopDraw and Draw Plus IIGS drawing programs; IIGS file management program Notes•N•Files; and more!

Dec. '87—ALL STARS: The editors select 96 top programs in all categories including graphics, education, word processing, entertainment, music, business accounting, disk utilities, telecommunications, personal finances and databases; more!

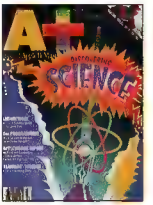
Nov. '87—HARD DISKS; comparative reviews of 6 outline processors; small business accounting; Certificate Maker and Award Maker compared; IIGS word processing; what packet radio can do for you; How I Use the II to Teach Contest; and more!

Oct. '87—COMPUTER LEARNING MONTH! Choosing the best educational software for your kids; 13 test-generation programs reviewed; debates on drill and practice methods. Plus: the IIGS Survival Guide; printing with AppleWriter on the IIGS; Marble Madness; and more!



Sept. '87—MS-DOS COMES TO THE APPLE II! PC Transporter board turns your Apple II into a high-speed IBM clone. Plus, IIGS desk accessories; balancing your finances; AppleWorks Report—using the @LOOKUP function; IIGS oscilloscope (includes free program listing); more!

Aug. '87—THE TYPEWRITER CONNECTION: Teaming your Apple II with an electronic typewriter; six baseball simulations compared; Laser 128EX reviewed; AppleWorks Report—how to use the @IF function; 14 top-ranked algebra programs for grades 7+; and more!



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Ramworks III 1 Meg	$535
RamFactor 256K	$299
RamFactor 512K	$349
RamFactor 1 Meg	$575
RamFactor Batt. Backup	$145
Checkmate Mem. Saver	$119
256K Chip Set 150ns	$ 99
512K Chip Set 120ns	$109

PC Transporter

PC Transporter 768K	$539
IIGS Installation Kit	$ 45
IIe Installation Kit	$ 36
Single 360K Drive	$209
Dual 360K Drive	$329

Modems

DataLink Modem	$139
DataLink 2400 Modem	$189
Epic 2400 Internal Classic	$159
Epic Mini Modem 1200	$ 79
Practical 1200SA	$112
Practical 2400SA	$184
IIGS Modem Cable	$ 19

Upgrades/Enhancements

Heavy Duty Pwr Supply	$ 59
Transwarp Accelerator	$175
SMT No Slot Clock	$ 39
Extended 80 Column	$ 39

Music & Sound

Apple Midi Interface	$ 82
Applied Sonic Blaster	$ 99
Applied Audio Animator	$189
Bose RoomMate Speakers	$229
MDIdeas Supersonic	$ 49
MDIdeas Digitizer	$ 49
MDIdeas Prof. Digitizer	$139
Passport Midi Interface	$ 89
Passport Midi Interface (with tape and drum)	$135

IIc Plus Enhancements

Ram Express 256K	$189
Ram Express 512K	$305
Ram Express 1 Meg	$535
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Computer Eyes GS Color	$205
Computer Eyes IIc	$105
Computer Eyes IIe	$105
ThunderScan	$179

Floppy & Hard Drives

Apple 5.25 Disk Drive	$269
Uni/Duo Disk Controller	$ 59
Apple 3.5 Disk Drive	$349
UniDisk 3.5 (IIe/IIc)	$319
UniDisk 3.5 Controller	$ 59
Central Point 3.5 800K	$186
Central Point Universal Drive Controller	$ 75
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Printers & Accessories

ImageWriter II w/Cable	$499
OrangeMicro Pro Grappler	$ 79
Panasonic 1080i	$199
Grappler C/Mac/GS	$ 75
Thunderware Fingerprint GSI Plus	$ 89
Serial Pro	$125
Parallel Pro	$ 79

Power & Surge Protectors

Kensington System Saver GS	$ 72
MDI Ideas Conserver	$ 99
Conserver 5.25 Drive Cable	$ 14
EPD EC-1 Surge Protector	$ 29

Exciting New IIGS Titles

Accolade	
Bubble Ghost	$ 26
Claris	
Appleworks GS	$199
Cinemaware	
King of Chicago	$ 35
Electronic Arts	
Chessmaster 2100	$ 35
Deluxe Write	$ 59
Milliken	
Medley	$129
Mindscape	
Deja Vu	$ 35
Shadow Gate	$ 35
Uninvited	$ 35
Sierra on Line	
Man Hunter in N.Y.	$ 35

Top 20 Apple IIGS Titles

Accolade	
Mean 18	$29
Activision	
Music Studio V2.0	$59
Paint, Write, Draw Bundle	$99
Paintworks Gold	$59
Britannica SW Designware	
Designasaurus	$29
Broderbund	
Print Shop GS	$39
Cinemaware	
Defender of the Crown	$35
Electronic Arts	
Bard's Tale II	$34
Deluxe Paint II	$69
Reach for the Stars	$29
Skate or Die	$29
Tomahawk	$20
Zanny Golf	$29
Epyx	
California Games	$32
Destroyer	$29
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Learning Company	
Reader Rabbit	$39
Mindscape	
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Sierra on Line	
King's Guest III	$32

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CIRCLE 271 ON READER SERVICE CARD

TELECOMMUNICATIONS

Some alternatives to the telephone lines, and a network for seniors

BY MICHAEL FISCHER

WHO NEEDS A MODEM?

Let's start with a philosophical question: Can you telecommunicate without a modem?

Obviously, if the *tele* in telecommunications means *telephone*, you cannot telecommunicate without the telephone line and, thus, a modem. But the *tele* in both words actually comes from the Greek word for *distance*, particularly communication over a distance. If telecommunications turns out to be the transmission of computer information over a distance, a modem is not a required part of the setup.

In point of fact, several modes of modemless telecommunications exist. Two such systems are direct connection between two computers, using a cable to transmit information; and packet radio (see "Packet Radio" in the November 1987 issue, pages 80–83), which uses radio waves in order to transmit information.

Now another type of modemless communication has been launched, as part of the expanding services of cable-television companies. The service, called X-Change, is available in various locations, depending on local cable-television service.

X-Change is a one-way service that sends information into your home by means of the system cable. You cannot send requests back over the system. You need a special $125 interface kit to receive the information, but you pay no monthly charges.

The people running X-Change are not philanthropic, though. They intend to make money from the service, but not from you. They charge your local cable company, and the cable company passes the cost on to you through the normal cable service charge, which includes not only X-Change but also the other basic service channels available in your area.

Because the service is one-way, your interaction with it is minimal. The custom software that comes with the interface box allows you to select categories that interest you. As those categories come across the cable, the software "grabs" items and saves them in your computer's memory. One of the system's drawbacks is that it receives information only as long as RAM is available. Once the RAM is full, you must remove data from memory before you can receive more.

Information available on X-Change includes news (national, international, business, finance, and columns), sports, weather, shopping, entertainment, lifestyles, and "tech talk." The service even has a quasi-interactive area called Information X-Change. Given the one-way nature of the X-Change communications link, however, you must send your responses to X-Change by mail or telephone, which detracts considerably from the spontaneity of the communications.

X-Change transmits information on the cable separately from the video and audio signals, thus avoiding interference with those signals. The transmission speed is 9600 bps. The data is also available in some locations via satellite.

The software currently runs on an Apple IIc or a IIe with 80-column display and at least 128K of RAM. If you have an Apple IIe, you also need a Super Serial Card or similar serial interface. The software does not work with the serial port on the Apple IIGS, although it may if the IIGS is equipped with a Super Serial Card. At press time, there was no word about compatibility between the software and the Apple IIc Plus. (The software is probably compatible, but an adapt-

ILLUSTRATION BY KEN CONDON

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ACCESSORIES

Computer Eyes, B/W, IIe/IIc	$104.95	System Saver IIgs	$75.95
Computer Eyes, Color, IIgs	$209.95	Disk Notcher	$ 4.95
Thunderscan	$189.95	80 Col. Printer Stand	$19.95
Kraft KC3 Joysticks	$ 19.95	Diskette Storage 60	$ 9.95
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CIRCLE 183 ON READER SERVICE CARD

er cable is necessary for the mini-circular 8 connector on that new member of the Apple II family.)

X-Change is available from X-Press Information Services, Ltd., P.O. Box 4153, Englewood, CO 80155; (800) 772-6397. You should check with your cable-television company concerning X-Change availability before ordering the X-Change hardware/software kit.

Telecommunications for Seniors

For several years, various computer pundits have been noting the increasing inroads computers are making in 20th-century life. Because the bulk of this impact has been in the business and education communities, most of us think of computer users as being young.

The SeniorNet project is designed to bring computing proficiency to senior citizens, and it works both in person and on-line. There are more than 135 SeniorNet locations in the U.S. and Canada. At each location, seniors can attend classes in computer literacy with their peers and get hands-on experience with a computer.

SeniorNet is the brainchild of Professor Mary Fulong, associate education professor at the University of San Francisco, California and the coauthor of *Computers for Kids Over 60*. She notes that seniors have been left out of the computer-literacy loop. "That was a crime because seniors have the time, the discretionary income, and the intellectual energy to explore the many capabilities of a computer."

The moving force behind SeniorNet is the "net," which brings the SeniorNet sites throughout the country into a network of communication. Approximately 2,000 seniors are currently linked in the network, and the number of members is growing. Each member spends an average of one hour on-line per week.

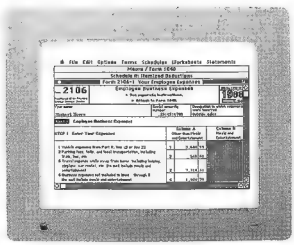
SeniorNet does more than provide a meeting place for computer-literate seniors. It also provides them with information geared to their interests, including such topics as health-care legislation, health and fitness, grooming, gardening, recreation, and travel. These topics are presented in the common on-line formats of bulletin boards, live on-line conferences, libraries, and electronic mail.

An exciting new addition to SeniorNet is the "museum," a place where seniors can record their life experiences. The memories and thoughts of our seniors represent an important national heritage, one that diminishes with the loss of each senior. The "museum" will preserve this history.

Seniors have been left out of the computer-literacy loop.

SeniorNet is supported with a primary grant from the John and Mary Markle Foundation in New York, with additional support from Apple Computer, General Videotext (which provides discounted access to SeniorNet on its Delphi network), Pacific Telesis, and the Outpatient Ophthalmic Surgery Society. Membership costs $10 per year and is available from SeniorNet, University of San Francisco, School of Education, San Francisco, CA 94117-1080. ✚

All tax programs should look and print like this one.



Better yet, all tax programs should *think* like this one.

TaxView Federal 1988 for the Apple IIGS.®

Simply put, TaxView Federal lets you enter data directly into 72 IRS forms and schedules, plus specially-designed worksheets and statements–all displayed on-screen in their official IRS versions. The program totals all entered amounts, automatically makes all calculations, and instantly links data to and from individual forms.

It even checks your input for illogical or inconsistent entries. And, the actual IRS instruction booklet is available on-line.

When you're ready to sign and send your completed return, TaxView Federal prints forms identical to the IRS-printed versions using popular dot-matrix printers. Of course, all printouts are fully IRS-approved.

To order your copy publisher-direct, call SoftView at 1-800-622-6829. Or, visit your local retailer.

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CIRCLE 172 ON READER SERVICE CARD

PICK OF THE CROP
BY LESLIE STEERE
AND SHANON CULLEN

From classroom software to classy hardware and accessories: Interesting products for you and your Apple II

PRODUCT ROUNDUP

Oltrad Graphics' fine art for the Apple II: Graphics Images

A PRINTING STAR

Finally, a printer for the rest of us. Star Micronics' latest entry into the letter-quality-printing market is the affordable ($529), high-resolution, 24-wire NX-2400 Multi-Font. Its 16-inch width and low profile help the NX-2400 fit your desktop as well as it does your budget. The tidy little printer has four resident fonts, three additional fonts are available through optional font cards, and users can expand their font library by downloading fonts and storing them on the printer's optional 32K RAM card.

The NX-2400's 360 × 360-dpi graphics resolution helps make it an especially useful tool for businesspeople involved in desktop publishing and computer-aided design, and it spools out word-processing files at the rate of 170 characters per second (cps) in the Draft Elite mode and 57 cps in the Letter-Quality Elite mode. A special paper-parking feature lets you adjust the printer for single-sheet feeding without having to remove the tractor-fed fanfold paper, and other convenient controls let you easily select typestyle, print pitch, form feed, and the Quiet mode.

The NX-2400 from Star Micronics brings letter-quality printing to your desktop.

NX-2400 MULTI-FONT
PRICE: *$529*

Star Micronics, Inc.
200 Park Avenue, Suite 3510
New York, NY 10166
(800) 227-8274 • (212) 986-6770

CIRCLE READER SERVICE NO. **501**

A FEAST FOR GRAPHICS GLUTTONS

Some pixel wizards may turn their noses up at clip-art packages, but here's one for would-be artists who can't turn fat bits into fine images. Graphic Images from Oltrad Graphics now comes packaged with five 5¼-inch double-sided disks full of highly detailed digitized clip art, much of it nostalgically old-fashioned in flavor.

Graphic Images includes two Volume 1 Variety disks with subjects ranging from a horse-drawn cart to a rocket ship; one Pictures, Borders & Fonts disk; and two Old Fashioned Winter disks. Its numerous winter-holiday and Christmas-based images make this package an especially timely find for anyone who still needs to dash off a few personalized holiday greeting cards: The variety of Santas, Christmas trees, and snowy scenes that you can use as is or resize, rotate, scale, or stretch may inspire you to end this season with an artistic splash. All disks except the Pictures, Borders & Fonts disk work with any desktop-publishing or paint program that can load ProDOS-based graphics.

Oltrad plans to release three IIgs-specific volumes before Christmas, each with 1,500 graphic images: Volume 2—The Human Anatomy, Animals, and Insects; Volume 3—Things You See Every Day; and Volume 4—America, New and Old. So go ahead—pretend to be great. Graphic Images may help you pull it off.

GRAPHIC IMAGES
Apple II+/e/c/gs/c+, one 5¼-inch disk drive, ProDOS (except Pictures, Borders & Fonts, which requires The Print Shop or compatible DOS 3.3 program), not copy-protected
PRICE: *$29.95*

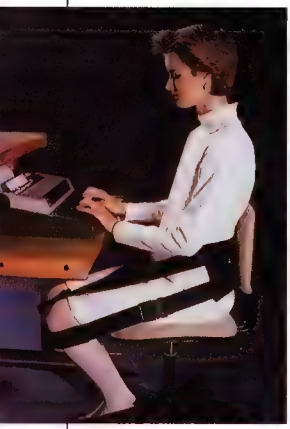
Oltrad Graphics, Inc.
5100 North Sixth, Suite 139
Fresno, CA 93710
(209) 224-2864

CIRCLE READER SERVICE NO. **502**

WHEN IS A CHAIR NOT A CHAIR?

When it's Nada-Chair, naturally.

An instant cure for people who have been slouching on the job, this lightweight nylon back preserver is catching on not only in physical-therapy offices but also at computer terminals. The Nada-Chair is a cloth-covered foam sling that curves around the lower back and attaches to padded straps that wrap around the user's knees. Properly adjusting the straps' tension



The Nada-Chair slouch-ending back sling

brings the spine into a well-supported, upright position. So now, whether stuck in that cursed office chair or carting your Apple with you to the bedroom, kitchen, or park, you can practice perfect posture and sit in comfort as you work. The Nada-Chair's $30 price tag seems a low fee to pay for ending lower-back strain and fatigue, and the sling—which is available in navy or royal blue, red, green, brown, black, or camouflage—is made of durable, washable materials.

NADA-CHAIR
PRICE: *$30*

NADA-CHAIR
842 22nd Avenue S.E.
Minneapolis, MN 55414
(800) 722-2587
(612) 623-4436

CIRCLE READER SERVICE NO. **503**

CLASSROOM CLASS

Teachers can start off the new year right with two programs published by D.C. Heath and distributed by William K. Bradford Publishing Company.

Read, Write, and Publish is an engaging series of process-writing programs available in eight levels (K–8). Students select a topic from a main list; each choice becomes a colorfully populated scene with its own menu bar from which they easily can choose to add or subtract items or labels and read or write about any item in the scene.

You select an item to animate it: In the grade 4 level, for example, caterpillars become butterflies, frogs become princes, spiders wriggle their legs, dragons leap, and unicorns fly. Heath and the program's copublisher, Learningways, have created story hints that should spark every child's imagination. From imagining that they are bugs to taking their teacher to the animal pound to find a replacement for her recently deceased dog, children are prompted to think creatively and have fun while they learn to write. Classes can print out their Read, Write, and Publish stories to create entire libraries of illustrated work.

Each package comes with a student user card, a teachers' manual, and four 5¼-inch disks or one 3.5-inch disk and can be loaded onto an AppleServe network.

The Heath Archive III Biology Computer Test Bank takes life more seriously. From eight double-sided item disks and an accompanying 50-chapter, 368-page illustrated teachers' guide/test book, educators can construct, edit, and illustrate biology tests for grades 10–11. A test-creator program disk holds the item-banking, test-construction, test-printing program that lets you choose items and graphics from the item disks or customize tests by adding your own items and illustrations created with other Apple graphics programs. Each of the 50 chapters includes 60–70 items organized by

Two classy programs for educators for D.C. Heath and William K. Bradford Publishing

question type (true/false, open-ended, multiple choice, or matching) and objective. The hundreds of test questions in the package allow instructors to evaluate students' comprehension at the literal, interpretation/application, and analysis level. You can ask your Apple to randomly select test items for you based on the chapter, item level, and objectives you want to cover in the test. Heath publishes similar test banks for other subjects and grade levels.

READ, WRITE, & PUBLISH
Apple IIe/c/gs/c+, one 5¼- or 3.5-inch disk drive, 128K RAM, ProDOS, copy-protected
PRICE: *$75 (volume discounts, network versions, and multiple formats available)*

D.C. Heath and Learningways, Inc.
Distributed by William K. Bradford Publishing
594 Marrett Road
Lexington, MA 02173
(800) 421-2009
(617) 862-2570

CIRCLE READER SERVICE NO. **504**

ARCHIVE III BIOLOGY COMPUTER TEST BANK
Apple IIe/c/gs/c+, 128K RAM, one 5¼-inch disk drive, ProDOS, copy-protected
PRICE: *$132*

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Distributed by William K. Bradford Publishing
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Lexington, MA 02173
(800) 421-2009
(617) 862-2570

CIRCLE READER SERVICE NO. **505**

A FISTFUL OF FIRE

Here's a new toy of joy for the trigger-happy Apple game aficionado: Epyx has designed a joystick specifically to fit in the palm of your hand, placing right at your trigger finger two fire buttons that let you shoot for higher scores than ever.

Epyx's high-scoring 500XJ joystick

PRODUCT ROUNDUP

The Epyx 500XJ's light weight and curved, tapered shape make it easy to hold through those long, tense hours of flight and fight, and its solid steel shaft should withstand the heat of many a high-scoring battle or adventure. A switch on the top of the joystick lets you choose between the self-centering and free-floating modes, and another button lets you trim the joystick's electrical center for different games. The 500XJ comes with a two-year warranty and with both a 9-pin male connector and a 16-pin DIP connector for use with the entire line of Apple IIs.

EPYX 500XJ
Apple II+/e/c/gs/c+
PRICE: *$39.95*

Epyx, Inc.
600 Galveston Drive
Redwood City, CA 94063
(415) 366-0606

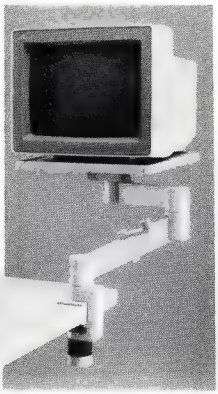
CIRCLE READER SERVICE NO. **506**

HEFT THAT MONITOR

In the December issue, *A+* warned against placing monitors on top of disk drives and other computer equipment. Well, if you need to use your dictionary too often to use it as an alternate monitor stand, here's another possible solution. The AnthroArm PC is designed to hold and move monitors weighing up to 60 pounds. The device lets you raise your monitor 7¾–12 inches above the work surface and extend it to 16½ inches. You can tilt the platform at 10-degree angles to cut glare, and both the platform and arm components swivel 360 degrees. The AnthroArm PC attaches to any work surface with one of three mounts: an edge clamp, desk clamp, or cart mount.

The 25-pound, platinum-gray arm is made of 16-gauge steel and cast aluminum and has a 5-year warranty.

The AnthroArm PC



ANTHROARM PC
PRICE: *$339–$449*

Anthro Corporation
3221 NW Yeon Street
Portland, OR 97210
(800) 325-3841
(503) 241-7113

CIRCLE READER SERVICE NO. **507**

TOOLKIT FOR POETS

Poetry Palette is a poetry toolkit for budding wordsmiths ages 9 to adult. The program contains a graphics library for illustrating poems, a 12,000-word rhyming dictionary, and a prewriting guide. Built-in lessons provide guidance for writing and learning about such poetry devices as rhyme and meter, haiku, couplet, and limerick, along with tutoring in alliteration, simile, and onomatopoeia. A Challenge Upgrade feature makes it possible to create custom poetry lessons.

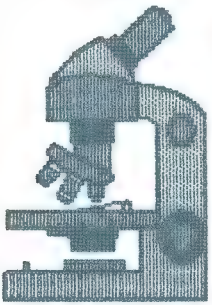
POETRY PALETTE
Apple II+/e/c/gs/c+, 128K RAM, one 5¼-inch disk drive (3.5-inch available in January), DOS 3.3, copy-protected
PRICE: *Home Edition or School Edition with Teacher's Supplement, $59.99*

Mindplay
100 Conifer Hill Drive
Building 3
Danvers, MA 01923
(800) 221-7911
(508) 774-1760

CIRCLE READER SERVICE NO. **508**

BIOLOGY SIMULATION

The BioSoft Probe Series gives biology teachers a new chance to get students truly involved in the subject. Consisting of 22 programs covering the areas of anatomy, physiology, zoology, botany, microbiology, and general biology, the program gives students control of a simulated probe while they investigate biological structure and function. Students can get "inside" organisms, systems, organs, tissues, and cells. They can activate the probe anywhere on the graphics or examine animated illustrations of processes. They can also review lesson material with the Name Game or use the probe to take a scored test. The mastery level can be set for individual ability.



Each program comes with a backup, remedial version (on reverse side of disk), worksheets, documentation, and vinyl cover. The program complements the curriculum in grades 7–12.

PROBE SERIES
Apple IIe/c/gs/c+, 48K RAM, one 5¼-inch disk drive, copy-protected
PRICE: *each program, $49; complete set, $799.95; lab pack of ten disks (of one program), $129.95*

Bio-Soft, Inc.
P.O. Box 7294
Winter Haven, FL 33880
(813) 299-8421

CIRCLE READER SERVICE NO. **509**

UNICORN KEYBOARD

Unicorn Engineering's Unicorn Expanded Keyboard brings computing power a giant step closer to the physically, visually, mentally, and learning-disabled. The keyboard has a large touch-sensitive surface that can replace the standard keyboard and 128 keys to use in prepared or customized arrangements. You can group individual keys together to form larger, easier-to-use areas representing a single character or an entire sentence. The Unicorn comes with both prepared and blank keyboard overlays, and you can design your own keyboard by placing paper overlays on top of it to indicate key locations and definitions. You can also team the keyboard with a speech synthesizer and add a spoken message to each square. The keyboard requires an Adaptive Firmware Card interface.

Unicorn's Up and Running custom overlay kit gives Expanded Keyboard users access to more than 40 educational and productivity programs, including The Print Shop, Stickybear ABC, Math Blaster Plus, and AppleWorks. The kit includes four custom overlays, software-compatibility lists, blank stickers, and overlays.

UNICORN EXPANDED KEYBOARD UP AND RUNNING
Apple II+/e/gs, 64K RAM, one 5¼-inch disk drive, not copy-protected
PRICE: *Keyboard, $325; Up and Running, $66.95; Adaptive Firmware Card, $400–$450*

Unicorn Engineering, Inc.
6201 Harwood Avenue
Oakland, CA 94618
(415) 428-1626

CIRCLE READER SERVICE NO. **510**

PRODUCT ROUNDUP

WHAT TO BUY FOR YOUR KIDS

Here's a publication for Apple-owning parents who are having trouble choosing educational packages for their kids. *The Parents' Guide to Highly-Rated Educational Software* lists more than 200 programs that have been positively evaluated by at least two unbiased reviewing agencies. The booklet includes programs in the standard areas of math, reading, science, and social studies as well as such topics as SAT preparation, songwriting, nutrition, problem solving, and art.

PARENTS' GUIDE TO EDUCATIONAL SOFTWARE
PRICE: *$5.95*

EPIE Institute
P.O. Box 839
Water Mill, NY 11976
(516) 283-4922

CIRCLE READER SERVICE NO. **511**

TEST-AUTHORING SYSTEM

Test-It! Deluxe is a test-authoring system that creates both printed and on-screen computer tests. The program lets you enter questions in five different formats: multiple choice, fill in the blank, matching, true/false, and essay. You can mix questions from all subject areas and difficulty levels, create on-screen tests of up to 20 questions, and print out tests of up to 200 questions.

TEST-IT! DELUXE
Apple II+/e/c/gs/c+, 64K RAM, one 5¼- or 3.5-inch disk drive (specify size), ProDOS, not copy-protected
PRICE: *$59.95; site license; $45*

EduSoft
P.O. Box 2560
Berkeley, CA 94702
(800) 338-7638
(415) 548-2304

CIRCLE READER SERVICE NO. **512**

VIDEO SOFTWARE GUIDE

New Line Video has come out with *Video Encyclopedia*, a new type of reference guide for students and businesspeople on the prowl for good Apple II software. This new video software-buyers' guide features the newest products from 20 of the leading U.S. and Canadian software developers. The full-color presentation includes demonstrations of art, music, desktop-publishing, entertainment, word-processing, educational, and business application software.

VIDEO ENCYCLOPEDIA
PRICE: *$39.95*

New Line Video
1229 Poplar Avenue
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(201) 233-8659

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SECOND IN HOLMES SERIES

Madness surrounds you. The terror mounts. Your screen pulses with horror, and only you can solve the mystery and set the world aright. The Charters Affair is the second adventure in Ellicott Creek's continuing Holmes series. You become Sherlock Holmes in this interactive graphics story, investigating with your trusty sidekick, John Watson, a series of deaths occurring in and around an ancient monastery near the Welsh-English border.

The software is primarily menu-driven, and most actions are menu-selectable, allowing you to move easily from one Victorian-era location to another as you diligently search for clues.

THE ADVENTURES OF SHERLOCK HOLMES: THE CHARTERS AFFAIR
Charters Affair: Apple IIgs, 768K RAM, one 3.5-inch disk drive, ProDOS, not copy-protected; Charters Affar II: Apple IIe/c/gs/c+, 128K RAM, one 5¼-inch disk drive, ProDOS, not copy-protected
PRICE: *IIgs version (Charters Affair), $39.95; IIe/c/c+ version (Charters Affair II), $35.95*

Ellicott Creek Software
138 Walton Drive
Snyder, NY 14226
(716) 839-3702

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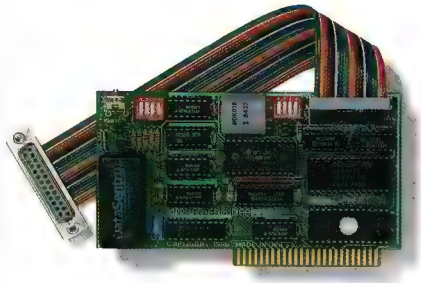
Serial Pro®
The intelligent multifunction card from Applied Engineering.



Serial Pro is a powerful multifunction card for the Apple IIe, II+, IIgs and compatible computers. Serial Pro combines a powerful serial port for interfacing to a printer, modem or other serial device, with a full function clock/calendar. Serial Pro's serial port is compatible with virtually all letter quality and dot matrix printers, including Apple's Imagewriter and Imagewriter II, and can communicate with the fastest external modems at baud rates from 50 to 19,200.

Set up is easy, because unlike other cards, there are no switches to program serial parameters or disks to use. Serial Pro has a built-in setup screen that allows all parameters to be set. And on-screen help that makes it super easy. An on-board battery stores your selections for over 20 years, but you can change them at any time. Serial Pro is the perfect upgrade for Super Serial card owners looking for more performance or a built-in clock.

Serial Port Features • Fully Super Serial Card compatible but more versatile and easier to use • Compatible with printers • Compatible with modems • Prints graphics to printer (without software) in normal mode, 90° rotation, double size, side by side, and black/white inversion • Variable word length, number of stop bits and parity selection • Crystal controlled circuits are used to provide ultra accurate baud rates.

Clock Calendar Features • ProDos, DOS and AppleWorks compatible. Displays time and date on the AppleWorks screen • Automatically time and date stamps AppleWorks files • 20 year auto recharging nickel-cadmium battery • Realtime interrupts • Built-in on screen time and date settings (no software needed) • Does not use phantom slots.

Serial Pro is perfect for Apple IIe, II+, IIgs or compatible owners in need of a serial port or clock/calendar or both. But unlike other multifunction cards on the market, Serial Pro does not use phantom slots, so all the slots in your computer are useable.

Serial Pro comes complete with manual and instructions for interfacing to all the leading printers and modems.

Serial Pro **$139**

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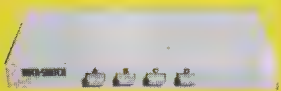

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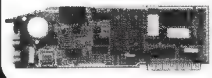

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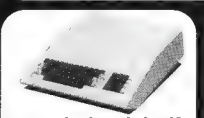

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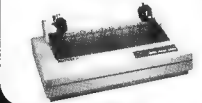

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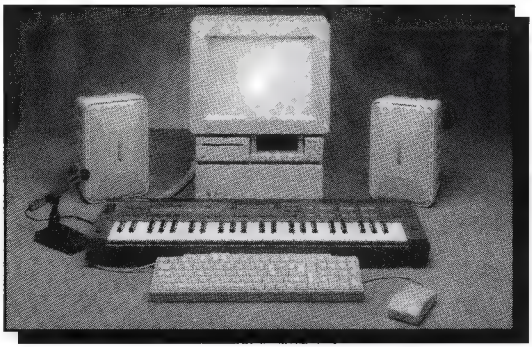

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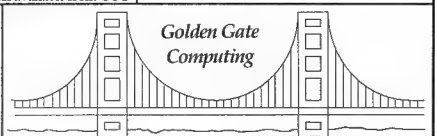

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TIPS AND TECHNIQUES

TIME AND DATE TROUBLES

AppleWorks has a function in its database module that can foul up record selection for the unwary. When you create a category containing the word *time* or *date*, the program automatically converts entries into the corresponding format. For example, if you enter 23 in a time field, AppleWorks displays it as 11:00 PM. Similarly, the entry 12/25/88 in a date field automatically becomes Dec 25 88.

Normally this automatic conversion doesn't present a problem and can be quite useful in some applications. If you create a category that includes other data along with the date (or time), however, the program no longer recognizes the date information. If you use the Select Records command (Ó-R) to find any data in this field, the program acts as if it doesn't exist. For example, if you enter Dec 25 88, Foster City, CA into a field called BIRTH DATE & PLACE and search this field for the string Dec or any other data in this entry, the program responds No records match the selection.

The only way to avoid this problem is not to use the word *time* or *date* in any category in which you want to include other data. The proper way to design a database is to assign each discrete piece of information its own field.

DAVID LILLEGARD
MAYVILLE, ND

SKIP LAUNCHER

Many early IIGS releases, such as Activision's Paintworks Plus, go to the system Launcher and force you to select the program file before actually running the application. To bypass the Launcher and save roughly 20 seconds during each subsequent bootup, follow this simple procedure using the Finder, System Utilities, or other file-maintenance program.

Working with a copy of your application disk, first delete the files START and P8 from within the SYSTEM folder. Then return to the root directory and give the application file a name that ends in .SYS16 or .SYSTEM, for ProDOS 16 and ProDOS 8 applications, respectively (doing so tells ProDOS 16 that this program is the one to run on bootup). For example, rename PAINTWORKS as PAINT.SYS16. The next time that you boot this disk, you will avoid the Launcher, and the application will load automatically.

ROY JACOB
HOUSTON, TX

CENTERING TEXT

The following Applesoft BASIC program centers text on the screen. This technique works in both the 40- and 80-column display modes, provided that the number of characters in the string of text to be centered (A$) does not exceed the column width of the screen.

```
10 PRINT "TEXT TO BE CENTERED"
20 INPUT A$
30 B = PEEK (33) - PEEK (32)
40 C = ((B / 2) + ( PEEK (32) / 2))
   - ( LEN (A$) / 2)
50 PRINT TAB (C);A$
60 GOTO 10
```

BRYAN NEWSON
CHICAGO, IL

BETTER ZIP+4 SORTING

In the October 1988 installment of "Tips and Techniques," Paul S. Bagley suggested using the underline character to separate ZIP codes from their ZIP+4 extension for correct sorting in AppleWorks database files. This technique works, but the best method is to stick with the hyphen, specified by the U.S. Postal Service, and simply arrange the ZIP+4 field alphabetically, using Ó-A, from A to Z for ascending order and from Z to A for descending order.

WAYNE I. PRIBBLE
NEW HAVEN, IN

Please send your Apple II tips to "Tips and Techniques," A+, 950 Tower Lane, 18th Floor, Foster City, CA 94404. If you send us a tip that we publish, we will send you an A+ T-shirt. Please include your name, address, and size (S-M-L-XL) with your submission.

ILLUSTRATION BY THOMAS WATERS

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The #1 AppleII Magazine

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	(1.) Own	(2.) Plan to Buy
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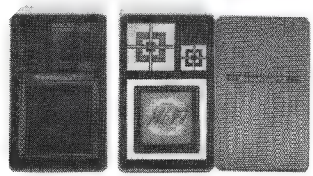

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DYSAN	.65*	.75*	$1.39*	$1.59*
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FLEX COLOR	.37*	.44*	$1.59*	$1.79*
Fuji	.45*	.69*	$1.39*	$1.59*
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MAXELL	.65*	.68*	$1.47*	$1.67*
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8X11 BIND PAGE	2	NO	Clear	$4.90/10, $39/100
3.50"				
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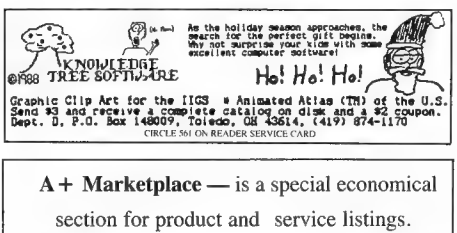
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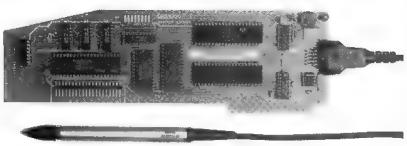

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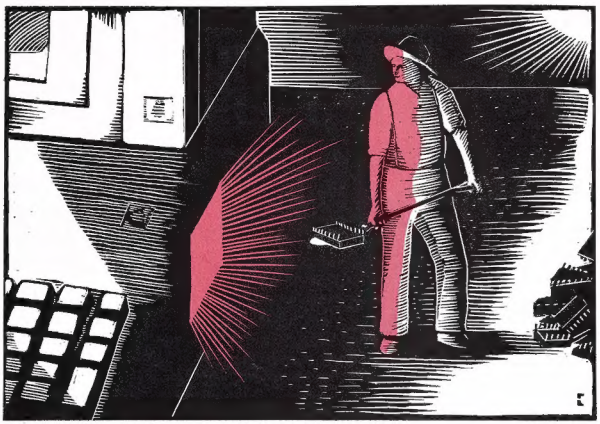

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KEITH BOUDREAU
VALENCIA, CA

A. If you're using the low-res or hi-res graphics modes on the IIGS, you can enable a "mixed" mode in which four lines of standard text appear beneath a graphics screen. These modes also exist on every other model in the Apple II family. There is no mixed mode involving the super-hi-res graphics screen, however. If you want to add text to a super-hi-res picture, you will have to draw it on the image.

ENLARGING MOUSEPAINT PICTURES

Q. *In the October 1988 "Rescue Squad," you suggested using Printographer to enlarge MousePaint pictures, even though you first had to convert the MousePaint ProDOS picture files to DOS 3.3. I know of two other programs that work with ProDOS files directly: Shape-It from Sheridan Software (5495 South Windmill Lane, Freeland, WA 98249; [206] 321-1316) and Triple-Dump from Beagle Bros (6215 Ferris Square, Suite 100, San Diego, CA 92121; [619] 452-5500). Both programs let you enlarge MousePaint or other hi-res pictures, crop them, and vary the print density.*

ROGER SHERIDAN
WHIDBEY ISLAND, WA

A. Thank you for presenting your alternative solutions. It also turns out that Roger Wagner Publishing (1050 Pioneer Way, Suite P, El Cajon, CA 92020; [619] 442-0522) has released a new and improved Printographer that runs under ProDOS, so you can add it to your ProDOS-compatibility list.

APPLESOFT AND PAINTWORKS

Q. *I own an Apple IIGS and Activision's Paintworks Gold program. I still like to write Applesoft programs that run under ProDOS 8 (as opposed to ProDOS 16 or GS/OS), and I'd like to know if it's possible to display Paintworks-style pictures with an Applesoft BASIC program.*

ADAM ALTMAN
LAKE FOREST, IL

A. Paintworks Gold uses the super-hi-res screen as its canvas, a screen that is not directly accessible from an Applesoft program—not surprising, since Applesoft was written almost ten years before super hi-res was born. If you are a clever assembly-language programmer, however, you can create a subroutine to do what you want and then call it from an Applesoft program.

The subroutine would use ProDOS 8 commands to load the Paintworks file into an unused area in the first 48K of memory, convert the contents of the file into a screen image, move the image into the super-hi-res video-buffer area in bank $E1 of memory, and then enable the super-hi-res display.

The hardest part of the subroutine is the portion that does the conversion to a screen image. Paintworks Gold can save pictures in three different formats—Apple Preferred, Paintworks Format, and Screen Format—so the subroutine has to know how to handle all three. The easiest to deal with is Screen Format; because Screen Format files are just images of the super-hi-res screen, no conversion is necessary. A technical description of the Apple Preferred format is in a technical note prepared by the Apple II Developer Technical Support group at Apple. It is available on most information services or from APDA, 290 S.W. 43rd Street, Renton, WA 98065; (800) 426-3667 or (206) 251-6548. Activision ([415] 329-0800) should be able to help you with the details of the Paintworks Format.

So What Software sells a line of products that give Applesoft users direct access to the special features of the IIGS. Iconix for the Apple IIGS is a super-hi-res graphics and animation interface that adds 16 new commands you can invoke with PEEK, POKE, and CALL statements. Iconix costs $39.95 (plus $2.50 shipping) and is available directly from So What Software, 10221 Slater Avenue, Suite 103, Fountain Valley, CA 92708; (714) 964-4298. ✚

Gary Little, former editor of A+, is manager of technical references and special resources in the Developer Tools Group at Apple Computer. If you have contacted the appropriate manufacturer(s) and still need help, please send your questions and problems to "Rescue Squad," A+, 950 Tower Lane, 18th Floor, Foster City, CA 94404. Because of limited space, we aren't able to publish responses to all inquiries we receive.

ILLUSTRATION BY RANDY LYHUS

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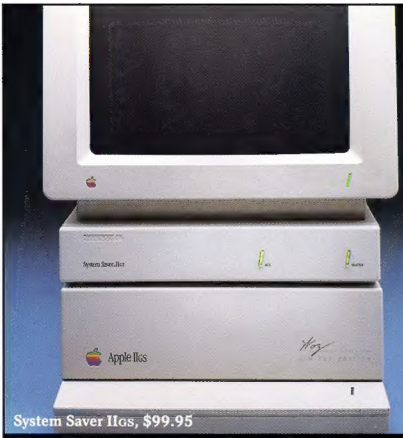

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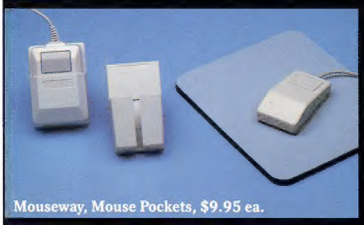

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